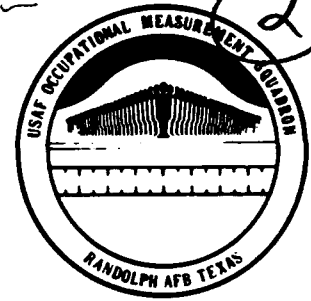


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UNITED STATES
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OCCUPATIONAL SURVEY REPORT

91-18093



BIOENVIRONMENTAL ENGINEERING CAREER LADDER

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DEC 17 1991

AFSC 907X0

AFPT 90-907-896

MAY 1991

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT SQUADRON
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

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HQ MAC/TTA	1		1	
HQ PACAF/DPAT	3		3	
HQ PACAF/TTA	1		1	
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USAFOMS/OMDQ	1			
USAFOMS/OMYXL	10	2m	5	10
USAFSAM/EDSC (BROOKS AFB TX - MEDICAL)	10	4	20	10
USMC (CODE TE-310)	1			

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PREFACE

This report presents the results of an Air Force Occupational Survey of the Bioenvironmental Engineering (AFSC 907X0) career ladder. Authority for conducting occupational surveys is contained in AFR 35-2. Computer products used in this report are available for use by operations and training officials.

Mr Roberto Salinas developed the survey instrument, Ms Becky Hernandez provided computer programming support, and Mr Richard G. Ramos provided administrative support. Captain Ron W. Schrupp analyzed the data and wrote the final report. This report has been reviewed and approved for release by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Squadron.

Copies of this report are distributed to Air Staff sections, major command personnel, and other interested training and management personnel. Additional copies may be requested from the Occupational Measurement Squadron, Attention: Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150-5000.

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SUMMARY OF RESULTS

1. Survey Coverage: Survey results are based on responses from 633 Bioenvironmental Engineering personnel. This represents 71 percent of the total assigned AFSC 907X0 population. Incumbents were surveyed across a variety of major commands, and the sample includes personnel from all skill-level DAFSCs.
2. Career Ladder Structure: Four clusters containing four job variations and two independent jobs were identified in the career ladder structure analysis. A cluster of Water Monitor Personnel contained a specialist job and a supervisory job. A second cluster contained Industrial Hygiene Personnel, many who also performed jobs as Supervisors, Environmental Monitors, or Water Monitors. A third cluster of NCOs had a First-Line Supervisor job and a Superintendents job. The fourth cluster consisted of technical training personnel assigned to Brooks AFB TX. One independent job type (IJT) contained administrative specialists. The other IJT was a group of radiological health personnel. This structure is very similar to the job structure identified in the previous 1985 survey.
3. Career Ladder Progression: The 3- and 5-skill level personnel essentially perform technical functions, while the 7-skill level members are both technicians and supervisors. Members at the 9-skill level perform a job similar to the 7-skill level personnel. However, career ladder progression is clearly defined as members get to the CEM Code level, where the job becomes purely supervisory.
4. AFR 39-1 Specialty Descriptions: When survey data were compared to AFR 39-1 Specialty Descriptions for AFSC 907X0 personnel, the documents were found to accurately reflect the way personnel were being utilized in the field. For both the 3-/5-skill and 7-skill level descriptions, a recommendation was made to add a reference to "calibrate support equipment" functions under the DUTIES AND RESPONSIBILITIES section of these descriptions.
5. Training Analysis: A match of survey data to the AFSC 907X0 Specialty Training Standard (STS) provided some support for the matched STS items. Some items were recommended for deletion. There were several 3-skill level proficiency codes identified for possible changes. A similar match of data to the Plan of Instruction (POI) for course 3ABY90730-000 (conducted at Brooks AFB TX) revealed several unsupported POI objectives. There were also several tasks not matched to either the STS or POI, which reflect training areas that may deserve inclusion in future revisions of these documents.
6. Job Satisfaction: Overall, the survey sample respondents had high job satisfaction. The "reenlistment intentions" indicator for first- and second-term members was low, but all other satisfaction indicators show that the Bioenvironmental Engineering personnel are quite satisfied with their jobs. Compared to other medical specialties surveyed in 1990, the AFSC 907X0 personnel had higher satisfaction indicators, except for "reenlistment intentions." Compared to AFSC 907X0 personnel surveyed in 1985, AFSC 907X0 members today

are slightly more satisfied with their jobs. Indicators for the specialty jobs reflected good satisfaction as well, particularly for the more experienced supervisory groups.

7. Implications: No significant changes have occurred with AFSC 907X0 since the previous 1985 survey. Any apparent differences in jobs performed are mostly a function of changes in the job inventory task list used to collect the job data. Areas of the STS and POI for specialist course B3ABY90730-000 should be reviewed for changes. AFR 39-1 Specialty Description changes were recommended for the 3-/5-skill level and 7-skill level descriptions. Job satisfaction has improved since the previous survey and continues to reflect that AFSC 907X0 career ladder personnel enjoy their jobs.

OCCUPATIONAL SURVEY REPORT
BIOENVIRONMENTAL ENGINEERING CAREER LADDER
(AFSC 907X0)

INTRODUCTION

This report presents the results of an occupational survey of the Bioenvironmental Engineering specialty completed by the Occupational Analysis Branch, USAF Occupational Measurement Squadron, in April 1991. A request to conduct this survey was made by HQ HSD/SOSP, Brooks AFB TX. The previous AFSC 907X0 survey was completed in October 1985 as a joint project with AFSC 908X0 (Environmental Medicine). The 1985 survey was designed to evaluate shifting responsibilities between the two AFSCs. These functional changes have since stabilized, and the two specialties are once again distinct. Therefore, this survey will discuss data and issues pertinent only to AFSC 907X0. Career ladder training documents, including the Specialty Training Standard (STS), AFR 39-1 Specialty Job Descriptions, and Plans of Instruction (POI) for the various technical training courses, will be examined in this report.

Background

The AFSC 907X0/908X0 Occupational Survey Report (OSR) completed in 1985 indicated there was only slight overlap between these specialties and concluded that the classification structure for keeping these specialties separate was appropriate. The OSR data contained in this report can assist technical training personnel in updating the current training program and evaluating the current classification structure for AFSC 907X0. Requirements for formal training or on-the-job training (OJT) are provided, and the need for specialized training for certain major command or skill-level groups can be assessed through interpretation of the data.

According to the AFR 39-1 Specialty Descriptions for AFSC 907X0, effective 30 April 1988, Bioenvironmental Engineering personnel conduct periodic surveys of industrial, chemical, and radiological materials found on base facilities and in associated water supplies. These personnel collect samples and analyze the materials for possible hazards. Reports are then written to provide recommendations. Medical Readiness and radiological health activities are also part of the 5- and 7-skill level job descriptions. Some statistics are applied to assess collected environmental samples. For members entering the AFSC 907X0 career ladder, a minimum score of 48 is required on the Armed Services Vocational Aptitude Battery test, in the General category.

The current AFSC 907X0 training program consists of an entry-level course (B3ABY90730) conducted at Brooks AFB TX and four 7-skill level courses. Course B3ABY90730 is 10 weeks long and includes instruction in mathematics, chemistry, physics, ecology and toxicology, analytical procedures, and waste management.

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The 7-skill level courses include Environmental Protection (course B3AZY90770 001), Industrial Radiological Hazards (B3AZY90770 004), Industrial Hygiene Measurements (B3AZY90770 009), and course B3AZY90770 010, Bioenvironmental Engineering Readiness. These courses cover a range of topics to include water, air, and solid waste pollutants, drinking water management, evaluation and control of radiation, industrial toxicology, workplace hazards, Risk Assessment Coding, and peacetime/wartime contingencies. All of these courses are held at the School of Aerospace Medicine (SAM), Brooks AFB TX. The training analysis section of this report provides data useful for evaluating the entry-level and 7-level POIs and the AFSC 907X0 STS, dated April 1986.

SURVEY METHODOLOGY

Data for this survey were collected by administering USAF Job Inventory AFPT 90-907-896, dated August 1989. During the initial inventory development, 22 subject-matter experts from 11 operational bases were interviewed. The developer also reviewed pertinent career ladder documents, the previous inventory, and OSR to prepare a task list. This task list comprised material from AFSC 907X0 and AFSC 908X0. In April 1989, Brooks AFB personnel requested separate studies, so all AFSC 908X0-specific tasks were removed from this job inventory. The resulting inventory used for this study contains only 907X0-specific tasks, which were validated by the AFSC 907X0 School Superintendent. Bases visited during this development included:

<u>BASE</u>	<u>UNIT</u>	<u>REASON FOR VISIT</u>
Brooks AFB	USAFSAM/EDH	Basic course location
Malmstrom AFB	341 Strat/SGPB	Aircraft and missile operations
Vandenberg AFB	1 Strat/SGB	Missile launch site
Edwards AFB	AFSC Hosp/SGPB	AFSC base; shuttle support
Tinker AFB	Hosp/SGB	AFLC base
Langley AFB	1 Med Gp/SGPB	TAC base; mobility
Andrews AFB	Med Center/SGPB	AFSC base
Kelly AFB	SA-ALC/EHB	AFLC base
Eglin AFB	Reg Hosp/SGPB	AFSC base
Keesler AFB	Med Center/SGPB	ATC base

The resulting job inventory lists 525 tasks grouped into 13 duty headings. The inventory also contains a number of background questions relating to duty AFSC (DAFSC), time in present job, time in service, work area assigned, job title, support equipment used, and job satisfaction information.

Survey Administration

From November 1989 through August 1990, the inventory booklets were administered to personnel eligible to take the survey. Consolidated Base Personnel Offices located at 117 operational bases across various Air Force major commands (MAJCOM) administered the inventory booklets to AFSC 907X0 personnel holding DAFSCs 90730, 90750, 90770, 90790, and 90700. These respondents were selected from a computer-generated mailing list provided by the Armstrong Laboratories, Human Resources Directorate (AL/HRD). Those individuals not eligible to participate in the survey included members in transition for a permanent change of station, those retiring at the time of survey, those hospitalized, and those who had not been in their present job for at least 6 weeks.

All individuals who filled out an inventory booklet first completed an identification and background information section. Next, they went through the booklet and checked each task performed in their current job. After checking all tasks performed, the respondents rated each of these tasks on a 9-point scale reflecting relative time spent on each task compared to all other tasks. Ratings ranged from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent). To determine relative time spent for each task checked by a respondent, the sum of a respondent's ratings was assumed to account for 100 percent of his or her time spent on the job. All respondent's ratings were added together, then each rating was divided by the sum of all responses. Then, this quotient was multiplied by 100 to obtain the relative percent time spent for each task. This procedure provided a basis for comparing tasks not only in terms of percent members performing, but also in terms of relative percent time spent on tasks and groups of tasks.

Survey Sample

The Job Inventory booklets mailed to all participants in the survey were monitored to ensure the final survey sample would be proportionally representative of the assigned MAJCOM and paygrade groups. Table 1 shows the percentage distribution, by MAJCOM, of assigned personnel in the career ladder as of August 1990. Also shown in this table is the percentage distribution, by MAJCOM, in the final survey sample. Table 2 shows the survey sample representation across paygrades. As these tables indicate, overall survey representation by MAJCOM and paygrade was very good. The 633 respondents included in the final survey sample represent 71 percent of the total 886 DAFSC 907X0 personnel assigned (as of August 1990).

TABLE 1
COMMAND REPRESENTATION OF AFSC 907X0 SURVEY SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
SAC	19	16
USAFE	16	18
AFLC	13	11
TAC	13	14
AFSC	10	9
MAC	9	10
ATC	9	10
PACAF	7	8
AAC	2	2
AFSPACECOM	1	1
USAFA	1	1
OTHER	-	0

TOTAL ASSIGNED	886*
TOTAL NUMBER ELIGIBLE	766
TOTAL IN SAMPLE	633
PERCENT OF ASSIGNED	71%
PERCENT OF ELIGIBLE	83%

* As of August 1990
- Indicates less than 1 percent

NOTE: AFSC 907X0 personnel not eligible for survey include those members with discharge, retirement, PCS, or hospital status, and those having less than 6 weeks in their present job

TABLE 2
PAYGRADE REPRESENTATION OF AFSC 907X0 SURVEY SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
E-9	1	1
E-8	2	2
E-7	8	8
E-6	10	10
E-5	22	21
E-4	31	29
E-3	16	21
E-2	8	8
E-1	2	0

* As of August 1990

Task Factor Administration

Once the survey data were processed and input into a Sperry 1100 computer, Comprehensive Occupational Data Analysis Programs were used to analyze the data and create job descriptions for various groupings of respondents. But, job descriptions alone do not provide sufficient information for making decisions about career ladder documents or training programs. Training Emphasis (TE) and Task Difficulty (TD) data can be useful for analysis of the career ladder. To obtain the needed task factor data, senior AFSC 907X0 personnel (mostly those in paygrades E-6 and E-7) were asked to complete TE and TD booklets. All of these booklets were processed separately from the job inventories, and the compiled data are used in a number of different analyses discussed later in this report.

Training Emphasis (TE). Training emphasis is defined as the amount of structured training that first-enlistment personnel should have to perform tasks successfully. Structured training is defined as training provided by resident technical training centers, field training detachments, mobile training teams, formal OJT, or any other organized training method. Fifty experienced AFSC 907X0 supervisors provided TE ratings. They rated the tasks in the inventory on a 10-point scale ranging from 0 (no training emphasis required) to 9 (high training emphasis required). The interrater reliability for these 50 TE raters was acceptable, indicating excellent agreement was reached on which tasks require some form of structured training. The average TE rating was 2.87, and a standard deviation of 1.81 was computed. To determine a high TE rating, the mean and standard deviation are added together. Thus, tasks having TE ratings above 4.68 (2.87 plus 1.81) are considered high TE items.

These data, combined with TD data and percentages of first-enlistment personnel performing tasks, serve as a factor in determining whether training adjustments should be made. For example, if a certain task has high TE and TD ratings, and the percentage of first-term members performing the task is significant, then strong recommendations can be made to formally train the task. For a more complete description of these ratings, see the Task Factor Administration section in SURVEY METHODOLOGY.

Task Difficulty (TD). Task difficulty is defined as the length of time the average airman takes to learn how to perform a task. This survey had 57 experienced supervisors rate the difficulty of the tasks in the inventory on a 9-point scale ranging from 1 (extremely low difficulty) to 9 (extremely high difficulty). Ratings were adjusted, so tasks of average difficulty would have a value of 5.0 and a standard deviation of 1.0. Tasks with ratings of 6.00 and higher are considered difficult to learn how to perform, thus requiring more time for instruction. Tasks rated below 4.00 are not perceived as very difficult to learn. As with TE ratings, the interrater reliability for these raters was acceptable.

TD ratings, when used in conjunction with other information, such as percent members performing tasks and TE ratings, can provide insight into training requirements and help validate the need for structured training for the career ladder.

SPECIALTY JOBS (Career Ladder Structure)

The structure of jobs within the Bioenvironmental Engineering career ladder was examined on the basis of similarity of tasks performed and the percent of time spent ratings provided by job incumbents, independent of background or other factors.

For the purpose of organizing individual jobs into similar units of work, an automated job clustering program compares the job description for each individual in the sample to every other job description in terms of the tasks performed and the relative amount of time spent doing those tasks. The automated program is designed to find the two most similar job descriptions and merge them into a group. All other job descriptions are then compared to this group, and those that are similar are also merged. In successive stages, new members are added to merge with groups already formed or to create new groups, until all job incumbents (and their respective job descriptions) are merged. The result is a pattern of jobs making up the AFSC 907X0 career ladder.

For this report, the career ladder structure is described in terms of clusters, job types, and independent job types. The basic identifying group is the job type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When different job types have a substantial degree of similarity between them, they are grouped together and labeled a cluster. In many career ladders, there are specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are called independent job types (IJT).

Structure Overview

Based on the similarity of tasks performed and the amount of time spent performing each task, four clusters containing four job types and two IJTs were identified in the examination of this specialty. These primary jobs, listed below, are illustrated in Figure 1, and descriptions for each are provided on the following pages. The stage (ST) number beside each job title is a computer-generated reference number. The letter N within parentheses refers to the number of personnel in each group.

- I. ADMINISTRATION SPECIALISTS IJT (ST0084, N=6)
- II. WATER MONITORING PERSONNEL CLUSTER (ST0039, N=35)
 - A. Water Monitoring Specialists (ST0063, N=21)
 - B. Water Monitoring Supervisors (ST0076, N=9)
- III. INDUSTRIAL HYGIENE CLUSTER (ST0037, N=451)
- IV. NCOIC/SUPERVISORY CLUSTER (ST0038, N=72)

- A. First Line Supervisors (ST0067, N=52)
- B. General Manager/Superintendent Personnel (ST0083, N=9)
- V. RADIOLOGICAL HEALTH IJT (ST0047, N=9)
- VI. TECHNICAL TRAINING CLUSTER (ST0055, N=10)
- V. NOT GROUPED (N=50)

The AFSC 907X0 personnel forming these clusters and IJTs account for approximately 92 percent of the total survey sample. The other 8 percent (50 people), referred to as isolates, perform sets of tasks that differ from those tasks performed by the identified groups shown. Therefore, these 50 individuals could not be merged with any identifiable job.

Two tables in this section provide background information about the clusters and IJT listed. Table 3 displays selected background information, such as DAFSC distributions across each group, average months in service (i.e., TAFMS), average number of tasks performed, and percent of group members supervising. As an example, the Administrative Specialists IJT, as shown in Table 3, is composed primarily of 3-skill level personnel (67 percent) who hold E-2 paygrades and average 20 months TAFMS. This group performs an average 26 tasks, and no one in this job is a supervisor. The data in Table 4 reflect the relative amount of time spent across each of the 13 duties for the identified survey groups. For example, the Administrative Specialists IJT members spend most of their job time (56 percent) performing administrative procedures (Duty E), and 24 percent of their time involves monitoring the environment (Duty G).

Also included in this report is an Appendix concerning the various AFSC 907X0 job tasks. Appendix A lists tasks commonly performed by members in each of the jobs identified. The most commonly performed tasks are selected according to high percent members performing and time-spent data, though the time-spent values have been omitted from the appendix. Complete job descriptions for this survey, which include time-spent values, can be found in a copy of the Analysis Extract.

Job Descriptions

I. ADMINISTRATION SPECIALISTS IJT (ST0084, N=6). The six members in this job account for 1 percent of the survey sample. Their primary job involves general administrative procedures and environmental protection tasks, such as equipment calibrations. As shown in Table 4, 80 percent of this group's time on the job involves these two areas (Duties E and G). A small portion of the job also includes industrial hygiene functions (Duty K). As indicated in Table 3, these specialists perform an average of only 26 tasks, which reflects the limitations of their job. They are 3- and 5-skill level members (see Table 3), all in their first enlistment, and have little career ladder experience (an average of 16 months). Some tasks commonly performed by members in this independent job include:

TABLE 3

SELECTED BACKGROUND DATA FOR 907X0 CAREER LADDER JOBS

	JOB TYPES					INDUSTRIAL HYGIENE CLUSTER (ST0037)
	ADMINISTRATION SPECIALISTS IJT (ST0084)	WATER MONITORING PERSONNEL CLUSTER (ST0039)	WATER MONITORING SPECIALISTS (ST0063)	WATER MONITORING SUPERVISORS (ST0076)		
Number in Group	6	35	21	9	451	
Percent of Total Sample	1%	6%	3%	1%	71%	
DAFSC Distribution (Percent Responding)						
90730	67%	51%	52%	33%	15%	
90750	33%	49%	48%	67%	66%	
90770	0%	0%	0%	0%	18%	
90790	0%	0%	0%	0%	1%	
90700	0%	0%	0%	0%	0%	
Predominant Grade(s)						
Average Months in Career Ladder	E2	E2	E2	E4	E4	
Average Months in Service	16	17	12	32	59	
Percent in First Enlistment	20	26	22	37	73	
Average Number of Tasks Performed	100%	79%	91%	66%	47%	
	26	66	54	110	134	
Percent Supervising	0%	9%	0%	33%	36%	

TABLE 3 (CONTINUED)

SELECTED BACKGROUND DATA FOR 907X0 CAREER LADDER JOBS

	JOB TYPES				
	NCOIC/ SUPERVISORY CLUSTER (ST0038)	FIRST-LINE SUPERVISORS (ST0067)	GENERAL MANAGER/ SUPERINTENDENT PERSONNEL (ST0083)	RADIOLOGICAL HEALTH IJT (ST0047)	TECHNICAL TRAINING CLUSTER (ST0055)
Number in Group	72	52	9	9	10
Percent of Total Sample	11%	8%	1%	1%	1%
DAFSC Distribution (Percent Responding)					
90730	1%	2%	0%	0%	0%
90750	14%	19%	0%	33%	0%
90770	61%	62%	56%	66%	90%
90790	17%	13%	22%	0%	10%
90700	7%	4%	22%	0%	0%
Predominant Grade(s)					
Average Months in Career Ladder	E7	E7	E7-E9	E6	E6-E7
Average Months in Service	172	165	208	111	172
Percent in First Enlistment	211	203	257	129	184
Average Number of Tasks Performed	0%	0%	0%	11%	0%
	133	157	64	93	40
Percent Supervising	90%	92%	100%	56%	60%

TABLE 4

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS*

DUTIES	ADMINISTRATION SPECIALISTS IJT (ST0084)	WATER MONITORING PERSONNEL CLUSTER (ST0039)	JOB TYPES			INDUSTRIAL HYGIENE CLUSTER (ST0037)
			WATER MONITORING SPECIALISTS (ST0063)	WATER MONITORING SUPERVISORS (ST0076)		
A Organizing and Planning	0	2	1	5	4	
B Directing and Implementing	0	6	5	11	5	
C Inspecting and Evaluating	4	2	2	3	3	
D Training	0	1	1	2	2	
E Performing General Administrative Procedures	56	18	20	15	21	
F Monitoring Drinking Water	1	39	39	26	7	
G Performing Environmental Monitoring	24	15	15	18	14	
H Conducting Radiological Health Programs	2	3	3	3	5	
I Performing Bioenvironmental Support of Aircraft and Missile Operations	0	-	1	-	-	
J Performing Mathematical Calculations	1	3	2	5	10	
K Conducting Industrial Hygiene Programs	11	6	5	8	22	
L Conducting Respiratory Protection Programs	1	1	2	-	2	
M Performing or Practicing Peacetime or Wartime Disaster Operations	1	5	6	5	6	

* Columns may not add to 100 percent due to rounding

- Indicates less than 1 percent

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS*

DUTIES	JOB TYPES				TECHNICAL TRAINING CLUSTER (ST0055)
	NCOIC/ SUPERVISORY CLUSTER (ST0038)	FIRST-LINE SUPERVISORS (ST0067)	GENERAL MANAGER/ SUPERINTENDENT PERSONNEL (ST0083)	RADIOLOGICAL HEALTH IJT (ST0047)	
A Organizing and Planning	20	18	34	12	6
B Directing and Implementing	17	17	24	11	3
C Inspecting and Evaluating	14	13	20	9	1
D Training	9	9	12	4	51
E Performing General Administrative Procedures	10	11	5	9	1
F Monitoring Drinking Water	1	1	-	-	0
G Performing Environmental Monitoring	4	5	1	2	1
H Conducting Radiological Health Programs	3	4	0	34	0
I Performing Bioenvironmental Support of Aircraft and Missile Operations	-	-	0	1	0
J Performing Mathematical Calculations	5	6	-	12	36
K Conducting Industrial Hygiene Programs	8	9	1	1	1
L Conducting Respiratory Protection Programs	1	1	0	-	0
M Performing or Practicing Peacetime or Wartime Disaster Operations	7	6	4	5	0

* Columns may not add to 100 percent due to rounding

- Indicates less than 1 percent

- initiate and complete DD Forms 2214 (Noise Survey)
- initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)
- initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)
- make entries on AF Forms 2761 (Hazardous Materials Data)
- make entries on AF Forms 1800 (Operator's Inspection Guide and Trouble Report (General Purpose Vehicles))
- calibrate noise dosimeters
- initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)
- initiate and complete computer-generated AF Forms 2756A & B (Noise Dosimeter Survey)
- collect area air samples from industrial environment

Personnel in this cluster average 20 months TAFMS, all have an E-2 paygrade, and no one in the group is a supervisor.

II. WATER MONITORING PERSONNEL CLUSTER (ST0039, N=35). Members in this cluster spend a large portion of their time (39 percent) collecting, analyzing, and interpreting data regarding drinking water samples (Duty F). Group members also spend portions of their time in other duties (as shown in Table 4), particularly in administration (Duty E) and environmental monitoring (Duty G). Table 3 indicates these personnel hold 3- and 5-skill level DAFSCs and E-2 paygrades. Seventy-nine percent of these members are in their first enlistment, and the group performs an average 56 tasks. Examples of these tasks include:

- perform bacteriological analyses of drinking water by membrane filter technique
- calibrate miran analyzers
- perform pH determinations
- collect potable water samples for analyses
- sterilize equipment and water bottles
- interpret and record bacteriological analyses of water for total coliform
- initiate and complete AF Forms 2752A & B (Environmental Sampling Data)
- perform bacteriological analyses of drinking water for total coliform
- make entries on AF Forms 708 (Swimming Pool Operational Log)
- ship drinking water samples for chemical or radiological analyses

Within this cluster, there are two job variations. The Water Monitoring Specialists (ST0063, N=21) are mostly 3-skill level personnel holding E-2 paygrades. The group averages 12 months job experience, less than any other

reported group. As shown in Table 3, 91 percent of these specialists are in their first enlistment. Table 4 indicates these members spend 39 percent of their job time monitoring drinking water (Duty F), while 20 percent involves administrative activities. This group performs an average 54 tasks, and no group member is supervising another 907X0. The Water Monitoring Supervisors (ST0076, N=9) comprise the other job in this cluster. These nine personnel are slightly more experienced than the specialist group, as their E-4 paygrades and 37 months TAFMS indicates (see Table 3). Group members spend approximately 21 percent of their job time performing supervisory tasks (Duties A thru D), and three members indicate they are directly supervising other AFSC 907X0 personnel. The group members are mostly 5-skill level personnel, and they perform 110 tasks on average, twice as many as the Water Monitor Specialists.

III. INDUSTRIAL HYGIENE CLUSTER (ST0037, N=451). The 451 members of this cluster comprise 71 percent of the survey sample. A large portion (22 percent) of the group's job involves conducting industrial hygiene programs (Duty K). Another 10 percent of their job time includes mathematical calculations (Duty J). Within this cluster, some personnel also specialize in supervisory functions or environmental monitoring, while others are monitoring drinking water. However, industrial hygiene remains the most significant part of the job for all members of this cluster; therefore, they are considered to be one large group with only minor distinctions. As Table 3 indicates, these personnel have mostly 5- and 7-skill level DAFSCs and average 59 months time in career ladder. Approximately 47 percent are in their first enlistment. Some tasks performed by members of this cluster include:

- document industrial hygiene shop visits
- perform noise surveys
- initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)
- document shop surveys
- initiate and complete DD Forms 2214 (Noise Survey)
- collect breathing zone or personal air samples, other than asbestos samples
- calibrate air sampling pumps
- make entries on AF Forms 2761 (Hazardous Materials Data)
- calculate time-weighted average (TWA)
- determine and recommend control methods to protect workers from hazards
- initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)

Personnel in this cluster perform an average 134 tasks, most have an E-4 paygrade, and 36 percent indicate they are supervisors.

IV. NCOIC/SUPERVISORY CLUSTER (ST0038, N=72). The members of this cluster are predominantly supervisors for other AFSC 907X0 personnel. Some members are also performing industrial hygiene tasks or wartime disaster operations (Table 4, Duties K and M). Most of the group (61 percent) are 7-skill level personnel holding E-7 paygrades and averaging 172 months time in career ladder. Examples of tasks performed by personnel in this cluster include:

- determine work priorities
- counsel personnel
- establish organizational policies, office instructions (OI), or standing operating procedures (SOP)
- write EPRs
- perform self-inspections
- evaluate administrative forms, files, or procedures
- determine requirements for space, personnel, equipment, or supplies
- schedule leaves
- write justifications for procurement of equipment, supplies, or work areas
- evaluate budgeting or financial requirements

In this cluster, there are two distinct jobs performed. The First Line Supervisors (ST0067, N=52) are mostly 7-skill level members who average 165 months in the career ladder. These supervisors are mostly E-7 paygrade personnel. As Table 4 reflects, approximately 57 percent of their job time involves supervisory activities (Duties A thru D), and small portions of their time are spread across the more technical duties. Table 3 shows these 52 members average 203 months TAFMS and perform an average 157 inventory tasks. The General Manager/Superintendent Personnel (ST0083, N=9) job contains nine senior-level managers. They are E-7 and E-9 paygrade personnel holding 7-skill through CEM CODE DAFSCs (see Table 3). Their job is 90 percent supervisory (Duties A thru D) and 5 percent administrative, as indicated in Table 4. Members of this job average 257 months TAFMS, all are supervisors of other AFSC 907X0 personnel, and they perform an average 64 tasks.

V. RADIOLOGICAL HEALTH IJT (ST0047, N=9). The nine members of this independent group specialize in radiological health programs. They also perform mathematical calculations (Duty J) and some supervision. They are mostly 7-skill level personnel holding E-6 paygrades and averaging 111 months time in career ladder (see Table 3). The group performs an average 93 tasks; some of which are displayed here:

- inspect sources of ionizing radiation
- evaluate operational procedures in radiation exposure areas
- calculate roentgen per hour output
- determine work priorities
- develop recommended controls for ionizing radiation exposure

- determine radiation doses or dose rates
- calculate exponential radiation decay
- inspect radiation detecting equipment
- establish organizational policies, office instructions (OI), or standing operating procedures (SOP)
- survey X-ray areas

The nine members of this group average 129 months TAFMS. Over half (56 percent) indicate they supervise other personnel.

VI. TECHNICAL TRAINING CLUSTER (ST0055, N=10). These 10 members comprise the last job identified in the career ladder structure analysis. They are assigned to Brooks AFB TX, where they provide instruction to 907X0s on a variety of subjects, including industrial health and environmental monitoring. As indicated in Table 4, these instructors spend 51 percent of their job time performing training tasks (Duty D), and 36 percent of their time involves instruction in mathematical calculations (Duty J). The rest of their time includes supervisory-related activities. Example tasks performed by this group include:

- write test questions
- prepare lesson plans
- evaluate training progress of students
- administer tests
- develop resident course or career development course (CDC) curriculum materials
- conduct resident course classroom training
- score tests
- calculate area of a circle
- calculate scientific notation
- calculate roots

Nine of these instructors are 7-skill level members. The group holds E-6 and E-7 paygrades, and they average 184 months TAFMS.

Summary of Specialty Jobs

Four clusters (comprising four jobs) and two IJT's were identified in the AFSC 907X0 career ladder structure analysis. One cluster (including two jobs) contained personnel who monitor drinking water at Air Force facilities. One job in this cluster was a group of specialists, the other had supervisors who also perform water monitoring tasks. A second cluster contained a large group (451 members) of industrial hygiene personnel, some of which were also performing water monitoring, environmental monitoring, or supervisory functions. A third cluster of NCOIC/Supervisors was divided into two jobs. The First Line Supervisors perform some technical tasks, while the manager/superintendent personnel are purely senior-level supervisors. The fourth

cluster reported involves technical training instructors located at Brooks AFB TX. One of the independent jobs contained administrative specialists who also perform some environmental monitoring tasks. The other independent job has nine radiological health personnel, who also perform some supervision and mathematical calculations.

Comparison of Current Survey to Previous Survey

The results of this specialty job analysis were compared to jobs and tasks of AFSC 907X0 reported in the last OSR published in 1985. In that report, AFSC 907X0 personnel formed four clusters and one independent job group. One cluster contained NCOICs and supervisors, while another consisted of Superintendents. There was also a cluster of Water and Pollution Personnel and a Health Protection Monitors cluster. Technical Training Instructors formed the independent job for the 1985 survey. In the present survey, most of the jobs identified were very similar to those mentioned above. The NCOICs and Superintendents are now part of a single cluster, but their functions have not changed. The Water Monitoring Personnel cluster is identical to the Water and Pollution Personnel group. Health Protection members are now being called Industrial Hygiene personnel, where the jobs have changed only slightly. The Technical Training cluster group performs the same duties as the Instructor group identified in 1985. One change has taken place since the previous study. The Radiological Health IJT members have formed a distinct group spending 34 percent of their job time on radiological health activities. This is a large increase in performance of radiology tasks compared to other groups in the past. These differences in career ladder structure can mostly be attributed to changes in analysis procedures and development of the job inventory. The AFSC 907X0 career ladder has remained stable over time.

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. DAFSC analysis identifies similarities and differences in task and duty performance at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as AFR 39-1 Specialty Descriptions and the STS, reflect what career ladder personnel are actually doing in the field.

A comparison of the duties and tasks performed across DAFSCs 90730 and 90750 revealed few differences between the two skill levels. The 3-skill level job does involve more time spent on monitoring drinking water (Duty F), and the 5-skill level members perform more supervisory activities. However, these are minor differences and are considered to be negligible. For this reason, the 3- and 5-skill level members are combined in this report for comparison with other skill-level groups.

Table 5 of this report displays the distribution of DAFSC group members across career ladder jobs. As this table indicates, the 453 members of the 3-/5-skill level group are concentrated in the Industrial Hygiene cluster (81 percent). Another 8 percent were grouped in the Water Monitoring Personnel cluster. As expected, few members of this group are performing supervisory jobs identified in this survey. In comparison, the 154 members of the 7-skill level group are found in industrial hygiene, as well as the NCOIC/Supervisory cluster. Small percentages are in technical training and radiological health, as Table 5 indicates. Table 6 shows the average percent time spent on duties across these DAFSC groups. The 3-/5-skill level personnel are performing more general administration, environmental and drinking water monitoring, and industrial hygiene compared to the 7-skill level group. In contrast, 42 percent of the AFSC 90770 job involves supervision duties (A thru D). Tables 5 and 6 show clear distinctions between the two DAFSC groups in terms of the jobs and tasks performed.

For further comparisons, the AFSC 90790 and CEM Code DAFSC groups are also shown in Tables 5 and 6. As members advance to the 9-skill level, more of their job involves supervision, which is expected. Table 5 reveals that 63 percent of the 9-skill DAFSC personnel were grouped in the NCOIC/Supervisory cluster. This compares to 28 percent of the 7-skill level group. At the CEM Code level, all members are either superintendents, first-line supervisors, or staff personnel (as indicated by the NOT GROUPED in Table 5). Table 5 indicates there are no CEM Code members working in industrial hygiene, though 26 percent of the 9-skill level members were identified with that job.

Table 6 reflects a significant increase in supervisory activity as members move from the 9-skill level to the CEM Code. In duties A thru D, AFSC 90790 members spend 58 percent of their time performing tasks. This compares to 84 percent time spent for the AFSC 90700 members, again showing apparent differences between these two groups.

Skill-Level Descriptions

DAFSC 90730/90750. The 453 members of the 3- and 5-skill level group comprise 72 percent of the survey sample. These specialists perform the full spectrum of technical duties associated with the career ladder (data shown in Table 6). They perform a lot of administrative tasks, but also work in industrial hygiene and environmental monitoring. Personnel may specialize in one particular area depending upon the requirements of their assigned base. Table 5 indicates that 81 percent of these personnel are assigned to jobs associated with industrial hygiene functions. Only 2 percent (nine members) are NCOIC/Supervisors, and 1 percent (five individuals) perform radiological health activities. Group members perform 114 tasks on average, they average 54 months TAFMS, and 73 tasks account for over 50 percent of their time on the job. Table 7 shows representative tasks performed by the group, and Table 11 displays tasks which best differentiate the 3-/5-skill level members from the 7-skill level members.

TABLE 5

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS CAREER LADDER JOB GROUPS
(AS A PERCENTAGE OF DAFSC GROUPS)*

JOB GROUPS	DAFSC 90730/ 90750 (N=453)	DAFSC 90770 (N=154)	DAFSC 90790 (N=19)	DAFSC 90700 (N=6)
I. ADMINISTRATION SPECIALIST IJT (N=6)	1	0	0	0
II. WATER MONITORING PERSONNEL CLUSTER (N=35)	8	0	0	0
A. Water Monitoring Specialists (N=21)	(5)	(0)	(0)	(0)
B. Water Monitoring Supervisors (N=9)	(2)	(0)	(0)	(0)
III. INDUSTRIAL HYGIENE CLUSTER (N=451)	81	53	26	0
IV. NCOIC/SUPERVISORY CLUSTER (N=72)	2	28	63	83
A. First Line Supervisors (N=52)	(2)	(21)	(37)	(33)
B. General Manager/Superintendent Personnel (N=9)	(0)	(3)	(11)	(50)
V. RADIOLOGICAL HEALTH IJT (N=9)	1	4	0	0
VI. TECHNICAL TRAINING CLUSTER (N=10)	0	6	5	0
V. NOT GROUPED (N=50)**	7	10	5	17

* Columns may not add up to 100 percent due to rounding

() Indicates a group within a cluster.

** Those incumbents whose jobs differ from the identified specialty jobs

TABLE 6
AVERAGE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS*

<u>DUTIES</u>	<u>DAFSC 90730/ 90750 (N=453)</u>	<u>DAFSC 90770 (N=154)</u>	<u>DAFSC 90790 (N=19)</u>	<u>DAFSC 90700 (N=6)</u>
A Organizing and Planning	3	12	19	34
B Directing and Implementing	5	12	15	18
C Inspecting and Evaluating	3	9	13	22
D Training	2	9	11	10
E Performing General Administrative Procedures	21	13	10	5
F Monitoring Drinking Water	9	3	1	1
G Performing Environmental Monitoring	14	8	5	1
H Conducting Radiological Health Programs	5	5	4	2
I Performing Bioenvironmental Support of Aircraft and Missile Operations	-	-	-	0
J Performing Mathematical Calculations	9	9	7	1
K Conducting Industrial Hygiene Programs	20	13	9	3
L Conducting Respiratory Protection Programs	2	1	-	-
M Performing or Practicing Peacetime or Wartime Disaster Operations	6	6	6	3

* Columns may not add to 100 percent due to rounding
- Indicates less than 1 percent

TABLE 7

REPRESENTATIVE TASKS PERFORMED BY DAFSC 90730/90750 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90730/ 90750 (N=453)
K469 Perform noise surveys	86
K451 Document industrial hygiene shop visits	85
E161 Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	85
G242 Calibrate air sampling pumps	85
K452 Document shop surveys	82
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	81
E173 Initiate and complete AF Forms 2214 (Noise Survey)	81
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	81
K468 Perform industrial ventilation surveys	81
E163 Initiate and complete AF Forms 2757 (Illumination Survey Data Sheet)	80
K446 Collect breathing zone or personal air samples, other than asbestos samples	80
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	78
E168 Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	78
K449 Construct and maintain industrial case files, except tab "F"	77
K467 Perform illumination surveys	77
K445 Collect area air samples from industrial environment	77
E159 Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	77
J435 Calculate time-weighted average (TWA)	77
K450 Determine and recommend control methods to protect workers from hazards	76
E166 Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	76
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	75
G267 Calibrate noise dosimeters	75
E199 Review and complete AF Forms 2763 (Industrial Hygiene Ventilation Presurvey)	72
K460 Investigate possible chemical health hazards	71
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	69
G274 Calibrate sound-level meters	68
K448 Compile data on equipment, aircraft, or other operations which produce noise	66

DAFSC 90770. The 7-skill level group contains 154 members accounting for 24 percent of the survey sample. These members are both skilled technicians and supervisors. Table 5 indicates that 53 percent of the group perform industrial hygiene functions. The rest are found primarily in the NCOIC/Supervisory cluster. The data in Table 6 reflect that this group spends 42 percent of its job time in a supervisory capacity (Duties A thru D), and the rest of their time is spread across technical activities. There is little performance of monitoring drinking water (Duty F) or respiratory protection (Duty L) tasks. As a group, the 7-skill level members average 171 months TAFMS, they perform an average of 134 tasks, and 106 of these tasks comprise over half of their job time. Table 8 displays tasks representative of the group, and Table 11 shows some tasks differentiating the 7-skill level members from the 3-/5-skill level group. Table 12 shows tasks which distinguish the AFSC 90770 members from members in DAFSC 90790.

DAFSC 90790. The 19 members of the 9-skill level DAFSC group comprise 3 percent of the survey sample. These members are supervisors and administrators of various AFSC 907X0 programs. Table 5 shows that a few of these members (26 percent) conduct industrial hygiene activities. The rest are supervisors. In terms of duties, Table 6 indicates these personnel spend about 58 percent of their job time supervising (Duties A thru D), slightly more than their 7-skill level counterparts. Part of the 9-skill level job does involve technical duties, particularly industrial hygiene and math calculations. On average, these supervisors perform 125 tasks, they have 259 months TAFMS, and 80 tasks comprise over half of their time on the job. Table 9 displays tasks representative of the group, and Table 13 shows some tasks differentiating the 9-skill level DAFSC group from CEM Code personnel.

DAFSC 90700. There were six members in the survey sample who are designated as CEM Code personnel. These managers are purely supervisory, spending their time determining work schedules and priorities, evaluating and managing AFSC 907X0 programs, and developing procedures. Table 5 shows that all members of this group are found in the NCOIC/Supervisory cluster, except for one superintendent who was not grouped in any described job. Table 6 reflects that 84 percent of the CEM Code job involves supervision duties (A thru D). This is substantially higher than the supervisory time spent ratings for the 9-skill level personnel described earlier. Group members perform 82 tasks on average, they average 296 months TAFMS, and 33 tasks account for over 50 percent of their time on the job. Table 10 shows representative tasks performed by the group, and Table 13 displays tasks which show differences between the CEM Code members and the 9-skill level group.

Summary

The jobs performed by the 3- and 5-skill level members are primarily technical, though a few group members are first-line supervisors (see Table 5). The 7-skill level members also perform technical jobs, but their supervisory roles are significantly increased as they advance from the 3-/5-skill level. The 9-skill level personnel are involved mostly in supervision or training activities, though a few of the 19 members of this group also perform industrial hygiene functions. Career ladder progression appears to be

TABLE 8
REPRESENTATIVE TASKS PERFORMED BY DAFSC 90770 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90770 (N=154)
A5 Determine work priorities	80
B48 Counsel personnel	71
C116 Write EPRs	71
J435 Calculate time-weighted average (TWA)	70
A17 Establish work schedules	70
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	68
B79 Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	66
K451 Document industrial hygiene shop visits	66
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	65
K460 Investigate possible chemical health hazards	64
K450 Determine and recommend control methods to protect workers from hazards	63
K455 Interpret results of air sample analyses and make recommendations to OPR	62
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	62
K452 Document shop surveys	61
E161 Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	60
A43 Write justification for procurement of equipment, supplies, or work areas	60
B45 Conduct briefings	60
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	59
K449 Construct and maintain industrial case files, except tab "F"	58
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	56
C102 Evaluate requests for issue of hazardous materials	56
C117 Write staff studies, surveys, or special reports	55
B55 Direct industrial hygiene surveillance of workplaces	54
E178 Maintain administrative files	54
B49 Direct bioenvironmental engineering activities	53
C87 Evaluate administrative forms, files, or procedures	53
E183 Maintain survey schedules	53
D148 Prepare lesson plans	42

TABLE 9
 REPRESENTATIVE TASKS PERFORMED BY DAFSC 90790 AIRMEN
 (PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90790 (N=19)
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	90
B48 Counsel personnel	89
A5 Determine work priorities	84
C116 Write EPRs	79
C114 Perform self inspections	79
A6 Develop budget or financial requirements	79
A4 Determine requirements for space, personnel, equipment, or supplies	79
B45 Conduct briefings	74
C88 Evaluate budgeting or financial requirements	74
C87 Evaluate administrative forms, files, or procedures	74
A11 Develop self-inspection programs	74
B70 Implement self-inspection programs	74
C86 Determine resource requirements	74
B44 Assign personnel to duty positions	74
B81 Supervise Bioenvironmental Engineering Technicians (AFSC 90770)	68
A43 Write justifications for procurement of equipment, supplies, or work areas	68
A8 Develop inspection schedules	68
A30 Serve on aerospace medical councils	68
C108 Indorse Enlisted Performance Report (EPR)	68
D144 Participate in training conferences or briefings	63
B49 Direct bioenvironmental engineering activities	63
B73 Interpret policies, directives, or procedures for subordinates	63
A17 Establish work schedules	58
B82 Supervise civilian personnel	47
D150 Schedule training sessions	47

TABLE 10
REPRESENTATIVE TASKS PERFORMED BY DAFSC 90700 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90700 (N=6)
C87 Evaluate administrative forms, files, or procedures	100
B44 Assign personnel to duty positions	100
A13 Develop work methods or procedures	100
A5 Determine work priorities	100
C86 Determine resource requirements	100
A6 Develop budget or financial requirements	100
C106 Evaluate suggestions	83
A10 Develop organizational charts	83
A26 Research or edit inputs for recurring reports	83
E178 Maintain administrative files	83
B73 Interpret policies, directives, or procedures for subordinates	83
A3 Design or develop information charts, status boards, graphs, or spot maps	83
A40 Write briefings	83
B45 Conduct briefings	83
C116 Write EPRs	83
A42 Write job descriptions	83
A29 Schedule leaves	83
A4 Determine requirements for space, personnel, equipment, or supplies	83
C105 Evaluate self-inspection programs	67
B85 Write local policy or higher headquarters directives	67
D152 Select individuals for specialized training	67
C97 Evaluate inspection reports or procedures	67
A27 Review publications to insure that health aspects are covered	67
A28 Revise or edit directives, such as manuals, regulations, supplements, or other publications	67

TABLE 11

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 90730/90750 AND 90770
PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90730/ 90750 (N=453)	DAFSC 90770 (N=154)	DIFFERENCE
E171 Initiate and complete computer-generated AF Forms 2756A & B (Noise Dosimeter Survey)	64	31	+33
F228 Perform pH determinations	56	23	+33
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	81	50	+31
G267 Calibrate noise dosimeters	75	44	+31
F206 Collect potable water samples for analyses	53	22	+31
F226 Perform chlorine determinations	53	22	+31
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	69	40	+29
K469 Perform noise surveys	86	58	+28
F238 Sterilize equipment and water bottles	42	15	+27
F220 Perform bacteriological analyses of drinking water by membrane filter technique	48	21	+27

C116 Write EPRs	21	71	-50
B79 Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	17	66	-49
A17 Establish work schedules	22	70	-48
B48 Counsel personnel	23	71	-48
A5 Determine work priorities	37	80	-47
A6 Develop budget or financial requirements	10	52	-42
A29 Schedule leaves	14	55	-41
C86 Determine resource requirements	11	52	-41
C114 Perform self-inspections	13	53	-40
D133 Determine OJT requirements	11	49	-38
C88 Evaluate budgeting or financial requirements	7	45	-38
B49 Direct bioenvironmental engineering activities	15	53	-38

TABLE 12

EXAMPLE TASKS WHICH BEST DIFFERENTIATE BETWEEN 90770 AND 90790
DAFSC GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90770 (N=141)	DAFSC 90790 (N=19)	DIFFERENCE
K445 Collect area air samples from industrial environment	59	21	+38
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	59	26	+33
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	68	37	+31
D125 Conduct OJT	57	26	+31
E166 Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	54	26	+28
E189 Make entries on AF Forms 2761 (Hazardous Material Data)	56	32	+24
K446 Collect breathing zone or personal air samples, other than asbestos samples	59	37	+22
G242 Calibrate air sampling pumps	63	42	+21

A30 Serve on aerospace medical councils	47	68	-21
J408 Calculate dilution ventilation	42	47	-5
D137 Direct or implement OJT programs	40	42	-2
K456 Interpret results of bulk sample analyses and make recommendations to OPR	52	53	-1
K457 Interpret short term exposure limit (STEL) values and notations	47	47	0
J425 Calculate permissible 8-hour exposure	60	58	+2
J435 Calculate time weighted average (TWA)	70	63	+7
B56 Direct industrial ventilation surveillance programs	48	42	+6
K454 Interpret permissible exposure limit (PEL) values and notations	61	47	+14

TABLE 13

EXAMPLE TASKS WHICH BEST DIFFERENTIATE BETWEEN 90790 AND 90700
DAFSC GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 90790 (N=19)	DAFSC 90700 (N=6)	DIFFERENCE
J425 Calculate permissible 8-hour exposure	58	0	+58
K456 Interpret results of bulk sample analyses and make recommendations to OPR	53	0	+53
A30 Serve on aerospace medical councils	68	17	+51
J408 Calculate dilution ventilation	47	0	+47
K454 Interpret permissible exposure limit (PEL) values and notations	47	0	+47
K457 Interpret short-term exposure limit (STEL) values and notations	47	0	+47
J435 Calculate time-weighted average (TWA)	63	17	+46
B56 Direct industrial ventilation surveillance programs	42	0	+42
D137 Direct or implement OJT programs	42	0	+42

C106 Evaluate suggestions	42	83	-41
A40 Write briefings	42	83	-41
A26 Research or edit inputs for recurring reports	42	83	-41
A41 Write civilian position descriptions	26	67	-41
A23 Plan new or improved methods for control of health hazards	26	67	-41
A13 Develop work methods or procedures	63	100	-37
E178 Maintain administrative files	47	83	-36
A42 Write job descriptions	47	83	-36
B85 Write local policy or higher headquarters directives	32	67	-35

somewhat limited as 7-skill level members advance to the 9-skill level. The jobs performed at both levels are similar in terms of tasks performed. However, a significant increase in supervisory activity is apparent as the 9-skill level members move to the CEM Code level. At this level, the individual performs only supervisory and managerial activities.

ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

The results of the specialty job structure and skill-level analyses were compared to the AFR 39-1 Specialty Descriptions (dated 1 February 1988) for the Bioenvironmental Engineering specialty. An analysis comparing the AFSC 90730/90750 Specialty Description with survey data showed the document accurately reflects tasks and jobs performed by these job incumbents. However, there are currently many members at this skill level who calibrate environmental monitoring equipment, such as the air-sampling pump, noise dosimeter, and sound-level meter. The data suggest that these particular calibration items should be included in the AFR 39-1 DUTIES AND RESPONSIBILITIES section of this job description.

A similar review of the AFSC 90770 Specialty Description with survey data reflected strong agreement between the two. At least 50 percent of the 7-skill level personnel perform calibrations of the sound-level meters and air sampling pumps, so a recommendation could be made to add these tasks to the job description for this group. As with the AFSC 90730/90750 job description, the change recommended for the AFSC 90770 description would come under the DUTIES AND RESPONSIBILITIES section of AFR 39-1.

A data review of the AFSC 90790/90700 Specialty Description revealed this document agrees with survey data. At this time, no changes are recommended for this job description in terms of survey data.

TRAINING ANALYSIS

Occupational survey data provide one of several sources of information which can be used to make training programs more relevant and meaningful to first-term personnel. Factors useful for evaluating training include the description of the job being performed by first-enlistment members and their overall distribution across career ladder jobs; percentages of first-enlistment (1-48 months TAFMS) personnel performing specific tasks; as well as TE and TD ratings (previously explained in the SURVEY METHODOLOGY section).

To assist in the examination of the AFSC 907X0 STS and the POI for course B3ABY90730 000 (dated 1 December 1989), technical training personnel from Brooks AFB TX matched tasks from the AFSC 907X0 job inventory to appropriate sections of these documents. This matching process allowed data comparisons to be made to those documents. Computer listings displaying the results of

these STS and POI matchings, to include percent members performing tasks, TE, and TD ratings for each task, have been sent to the training personnel at Brooks AFB for their review. Some of this information is presented in the pages that follow.

First-Enlistment Personnel

There were 262 survey sample members in their first enlistment, representing approximately 41 percent of the survey sample. These specialists perform all aspects of the technical jobs described in the SPECIALTY JOB section of this report. They do not perform functions associated with the technical training or supervisory clusters. The distribution of first-term personnel across the specialty jobs is displayed in Figure 2. The majority of the group (81 percent) is concentrated in the Industrial Hygiene cluster, while 11 percent perform water-monitoring tasks. Three first-term members are assigned to radiological health areas. A list of tasks commonly performed by group members is found in Table 14. Table 15 shows a partial list of support equipment used by large numbers of first-enlistment personnel. Equipment used by the highest percentages of first-termers includes calculators, noise dosimeters, air-sampling pumps, sound-level meters, and membrane filters. Many of the tasks performed by this group relate specifically to the use of these equipment items. Tasks and equipment listed in Tables 14 and 15, respectively, are considered important training items given the high first-term personnel performing data. Also, because the majority of first-enlistment members perform industrial hygiene activities, training personnel should consider emphasizing industrial hygiene in the entry-level training program.

Training Emphasis and Task Difficulty Data

Training Emphasis (TE) and Task Difficulty (TD) ratings are based on the judgments of experienced career ladder NCOs working in Air Force operational units. TE ratings provide training personnel with a rank-ordering of tasks considered important for first-term airman training. TD ratings measure the relative difficulty of each job inventory task. These TE and TD ratings, combined with percentages of first-enlistment personnel performing tasks, serve as a basis for determining whether training adjustments should be made. To assist in this determination, an Automated Training Indicator (ATI) is computed for each task in the inventory. ATI combines first-enlistment percent members performing tasks, TE, and TD data to compute training decisions based on ATCR 52-22, Atch 1. The computed ATI is numbered on a 1 to 18 scale, with an 18 being the highest level of training indicated. An ATI of eight or less leads to a training decision of OJT only. To illustrate how the ATI is computed, if a task has received high TE and TD ratings and also has a high percentage of first-term members performing, then a high ATI rating is assigned to the task. With a high ATI rating, strong recommendations can be made to emphasize training that task. For a more complete description of TE and TD ratings, see the Task Factor Administration section in SURVEY METHODOLOGY.

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY DAFSC 907X0
AIRMEN WITH 1-48 MONTHS TAFMS

TASKS	PERCENT MEMBERS PERFORMING (N=262)
E161 Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	86
K469 Perform noise surveys	85
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	85
G242 Calibrate air-sampling pumps	85
K451 Document industrial hygiene shop visits	82
E173 Initiate and complete DD Forms 2214 (Noise Survey)	82
E163 Initiate and complete AF Forms 2757 (Illumination Survey Data Sheet)	82
K467 Perform illumination surveys	81
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	79
K452 Document shop surveys	79
K468 Perform industrial ventilation surveys	79
K446 Collect breathing zone or personal air samples, other than asbestos samples	79
E159 Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	77
G267 Calibrate noise dosimeters	76
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	75
K449 Construct and maintain industrial case files, except tab "F"	74
E166 Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	74
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	73
K450 Determine and recommend control methods to protect workers from hazards	72
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	72
G274 Calibrate sound-level meters	69
F228 Perform pH determinations	66
F206 Collect potable water samples for analyses	62

TABLE 15

SUPPORT EQUIPMENT USED BY FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

<u>EQUIPMENT</u>	<u>PERCENT FIRST ENL PERFORMING (N=262)</u>
CALCULATORS	94
NOISE DOSIMETERS	92
AIR-SAMPLING PUMPS	90
SOUND-LEVEL CALIBRATORS	90
SOUND-LEVEL METERS	90
EAR PLUGS/EAR MUFFS	88
MEMBRANE FILTERS	84
COMPUTER EQUIPMENT	83
RUBBER GLOVES	83
CHLORINE TEST KITS	81
FOOT CANDLE METERS	81
PROTECTIVE CLOTHING	79
PROTECTIVE FACE EQUIPMENT	79
MICROFICHE	77
AIR-SAMPLING COLLECTION DEVICES	75
LABORATORY GLASSWARE	75
STOP WATCHES	75
AN/PDR 27 METERS	74
BACTERIOLOGICAL WATER KITS	74
RUBBER APRONS	74
WBGT (GLOBE TEMPERATURE TEST)	70
CARBON MONOXIDE DETECTORS	69
MICROWAVE OVEN METERS	66
STAPLEX HIGH VOLUME SAMPLERS	66
INCUBATORS	65
THERMOLUMINESCENT DOSIMETERS	65
PORTABLE GENERATORS	63
VELOMETERS	63
AUTOCLAVES	62
pH METERS	61
OCTAVE BAND NOISE ANALYZERS	60
PAC 15	60

In this OSR, the TE ratings were collected through the responses of 50 experienced career ladder NCOs. These ratings provide a rank-ordering of tasks from high degree of training emphasis to no training required. The average emphasis rating was 2.87, with a standard deviation of 1.81, so tasks receiving ratings higher than 4.68 were considered to require high emphasis in training.

The tasks having the highest TE ratings covered collection of breathing zone, asbestos, and air samples, initiating forms, performing surveys, and making calculations. A complete listing of the highest TE-rated tasks is found in Table 16.

TD ratings for this survey were assessed through the responses of 57 experienced career ladder NCOs. These ratings were standardized to provide a rank-ordered task list with an average difficulty of 5.00 and a standard deviation of 1.00. A listing of those tasks having the highest TD ratings is found in Table 17. These tasks involve mostly radiological health and directing evaluations and activities. The displayed tasks are not recommended for first-term training based on the low percentages of first-term members performing them and the relatively low TE ratings. Areas rated the lowest in TD included performing chlorine and pH determinations, collecting water and ice samples, and transporting samples.

Table 18 shows examples of tasks with the highest ATI ratings. These tasks are performed by large numbers of first-enlistment personnel, and the corresponding TE ratings are high (above 4.68). These tasks are highly recommended for training in the basic course.

Specialty Training Standard (STS)

A thorough review of STS 907X0, dated April 1986, allowed STS items to be compared with survey data. This review was made possible with the assistance of the previously mentioned Technical Training personnel from Brooks AFB. Most of the STS paragraphs and subparagraphs containing subject-matter knowledge or OJT requirements were not examined.

The normal criterion for including an item on the STS is that tasks matched to the STS item be performed by at least 20 percent of the first-job, first-enlistment, 5-skill level, or 7-skill level DAFSC personnel. Based upon the 20 percent performing criterion, the data supported most areas in the STS. Some items not supported by data included calculating logarithms (10a7), waste treatment operations (12c and 13c), installation restoration program (IRP) concepts (14d), and ionizing radiation calculations (22a). Table 19 shows some examples of STS elements that have matched inventory tasks with low percent members performing values, and moderate or low TE ratings. These and other unsupported items are recommended for consideration by subject-matter experts for possible deletion from the STS based on the data. Training personnel should carefully review all areas of the STS to determine which areas are suitable for deletion.

TABLE 16

TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS		PERCENT PERFORMING			
		TNG EMP* (N=123)	FIRST JOB (N=123)	FIRST ENL (N=262)	TSK DIFF**
K446	Collect breathing zone or personal air samples, other than asbestos samples	7.18	68	79	5.11
G242	Calibrate air-sampling pumps	7.08	80	85	4.73
J435	Calculate time-weighted average (TWA)	6.96	60	72	4.54
K452	Document shop surveys	6.94	67	79	4.64
K468	Perform industrial ventilation surveys	6.84	72	79	5.62
G282	Collect breathing-zone asbestos samples	6.78	43	51	5.19
F220	Perform bacteriological analyses of drinking water by membrane filter technique	6.70	61	56	4.27
J425	Calculate permissible 8-hour exposure	6.56	61	68	4.66
K454	Interpret permissible exposure limit (PEL) values and notations	6.54	53	65	5.28
K469	Perform noise surveys	6.54	79	85	4.72
E189	Make entries on AF Forms 2761 (Hazardous Materials Data)	6.52	73	79	4.92
G283	Collect clearance asbestos samples	6.52	26	36	5.42
K445	Collect area air samples from industrial environment	6.52	67	75	5.12
K449	Construct and maintain industrial case files, except tab "F"	6.46	63	74	5.54
K451	Document industrial hygiene shop visits	6.44	72	82	4.20
J434	Calculate threshold limit value (TLV) for chemical mixtures	6.38	43	51	5.18
E164	Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	6.36	72	75	4.70
E161	Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	6.34	80	86	4.36
J393	Calculate air changes	6.32	57	64	4.43
G267	Calibrate noise dosimeters	6.32	74	76	4.45
J394	Calculate airborne contamination	6.22	40	49	5.07
F213	Interpret and record bacteriological analyses of water by membrane filter technique	6.20	56	50	4.21
E168	Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	6.18	69	76	4.91

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	TSK DIFF**	PERCENT MEMBERS PERFORMING			
		FIRST ENLIST (N=262)	DAFSC 90750 (N=354)	DAFSC 90770 (N=154)	TNG EMP*
H373 Write base regulations covering base radiation programs	7.69	3	4	12	1.20
B57 Direct ionizing radiation safety programs	7.66	6	12	35	2.48
B58 Direct medical evaluation of chemical incidences or disasters	7.24	7	12	31	2.24
B59 Direct medical evaluation of radiological incidences or disasters	7.23	5	9	24	2.04
I391 Provide consultation services for all DOD hypergolic movements in CONUS	7.16	0	1	0	.30
H354 Investigate abnormal exposures or overexposures to ionizing radiation	7.13	11	16	23	3.26
B49 Direct bioenvironmental engineering activities	7.07	9	17	53	2.34
H355 Investigate suspected RF exposures	7.06	9	15	24	3.62
H346 Identify hazards resulting from laser operations	7.00	7	8	10	2.52
B55 Direct industrial hygiene surveillance of workplaces	7.00	22	31	54	2.50
B85 Write local policy or higher headquarters directives	6.96	2	3	18	.36
A23 Plan new or improved methods for control of health hazards	6.90	15	22	33	1.70
G293 Evaluate work areas for sick building syndrome	6.89	13	13	18	3.00
A12 Develop unit emergency plans	6.88	3	8	25	1.04
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	6.85	21	36	65	1.66
A9 Develop mobility plans	6.81	2	5	15	.68
D136 Develop resident course or career development course (CDC) curriculum materials	6.80	1	1	4	.22
A11 Develop self-inspection programs	6.77	6	9	39	1.48
H337 Develop recommended controls for laser hazards	6.76	5	6	10	2.14
H340 Direct the disposal of radioactive waste	6.74	3	6	11	2.12
H338 Develop recommended controls for suspected radio frequency (RF) exposures	6.71	10	14	22	2.48
C89 Evaluate civil engineering drawings for medical aspects of new or modified construction	6.69	3	8	38	1.34
C113 Investigate compensation claims	6.64	2	6	12	1.22
B60 Direct medical portion of issue exception code program for hazardous materials	6.62	10	18	45	2.02
G266 Calibrate miran analyzers	6.61	12	10	10	2.10

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

TABLE 18

EXAMPLE TASKS HIGH IN AUTOMATED TRAINING INDICATOR (ATI) RATINGS

TASKS	PCT 1ST ENLIST (N=262)	TNG EMP*	TSK DIFF**	ATI***
E159 Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	77	5.98	3.49	18
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	72	6.02	3.73	18
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	73	6.18	3.10	18
F213 Interpret and record bacteriological analyses of water by membrane filter technique	50	6.20	4.21	18
F220 Perform bacteriological analyses of drinking water by membrane filter technique	56	6.70	4.27	18
F225 Perform bulk water sample collection	50	4.84	3.42	18
F238 Sterilize equipment and water bottles	51	4.92	3.05	18
G242 Calibrate air sampling pumps	85	7.08	4.73	18
G267 Calibrate noise dosimeters	76	6.22	4.45	18
G281 Collect air samples for environmental analysis	53	5.50	5.17	18
G282 Collect breathing zone asbestos samples	51	6.78	5.19	18
J422 Calculate parts per million (PPM) conversion	55	5.84	4.42	18
J434 Calculate threshold limit value (TLV) for chemical mixtures	51	6.38	5.18	18
J435 Calculate time weighted average (TWA)	72	6.96	4.54	18
K448 Compile data on equipment, aircraft, or other operations which produce noise	62	5.00	5.07	18
K449 Construct and maintain industrial case files, except tab "F"	74	6.46	5.54	18
K450 Determine and recommend control methods to protect workers from hazards	72	6.04	6.02	18
K460 Investigate possible chemical health hazards	66	5.26	5.99	18
K461 Investigate possible physical health hazards	55	4.90	5.71	18
K466 Perform dilution ventilation surveys	61	4.78	4.98	18
K471 Perform temperature and humidity surveys	60	4.72	4.15	18
L476 Advise shop supervisors in ordering respiratory protection devices	52	4.82	5.14	18
M500 Don or doff protective chemical ensemble	53	5.34	4.07	18
M510 Operationally maintain AN/PDR 27	52	5.34	3.51	18
G243 Calibrate AN/PDR 27 meters	52	4.66	3.93	17

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 19

STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS	TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING				TSK DIFF**
			FIRST JOB (N=123)	FIRST ENL (N=262)	DAFSC 90750 (N=354)	DAFSC 90770 (N=154)	
0159 14a(1).	Surveys						
G290	Evaluate efficiency of garbage and refuse collection methods	1.20	2	5	5	4	5.01
G291	Evaluate efficiency of industrial waste treatment or disposal methods	2.82	14	16	19	17	5.97
0170 14d(3)(b)(1).	Ground water hydrology						
G288	Determine absolute elevation of water levels	.30	2	1	1	2	5.96
0171 14d(3)(b)(2).	Geophysical survey techniques						
G309	Perform installation Restoration Program (IRP) sampling	1.78	3	7	6	4	5.43

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

TABLE 19 (CONTINUED)

STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS	TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING				TSK DIFF**
			FIRST JOB (N=123)	FIRST ENL (N=262)	DAFSC 90750 (N=354)	DAFSC 90770 (N=154)	
0267 22a(2).	Fundamental concepts of energy and mass						
J419	Calculate mass to energy and energy to mass conversion	2.20	7	7	5	3	5.69
0268 22a(3).	Quantities and units						
J433	Calculate specific ionizations	1.48	3	4	5	4	5.93
0270 22a(5).	Decay calculations						
J413	Calculate exponential radiation decay program (IRP) sampling	2.44	7	8	11	11	5.98

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

There were also several STS elements identified for review of 3-skill level proficiency codes. Some of these elements are shown in Table 20. For example, item 12c(2) of Table 20 has four tasks matched to it, all from Duty F (monitor drinking water). Two of the tasks have high percentages of first-enlistment and first-job members performing them. The TE ratings for these tasks are also high, well above the established high rating (4.68). These data suggest this STS item could be more appropriately coded with a task knowledge and performance rating, such as "1a." Similarly, item 12c(3) is recommended for raising the coding level to reflect a task knowledge training requirement ("a"). The other STS items displayed in Table 20 have data which do not support the current 3-skill level proficiency codes. Items 12e(6) and 13c are not recommended for any formal training, based on the low first-term performing tasks data. The ATI ratings for these matched tasks are also low, indicating the code should be dashed ("-") to indicate training by OJT only. The last three STS items shown in Table 20 are recommended for subject-knowledge level training ("A" codes), rather than the task knowledge and performance levels indicated by the proficiency codes.

Table 21 displays tasks not matched to the STS which have greater than 20 percent members performing them. Some of these tasks concern calibration of equipment, sample collecting, and calculations. Data for these unreferenced tasks suggest they should be included in the STS. These tasks may already fit under an STS paragraph, but simply were not referenced to one, or they may be functions not currently reflected in any STS element. The data indicate a review of the STS is necessary for the possible inclusion of these tasks in the next STS revision.

Plans of Instruction (POI)

Though we recognize that training courses conducted through Air Force Systems Command are not governed by Air Training Command regulations, we suggest that the criteria established in ATCR 52-22 be used to evaluate POIs for the AFSC 907X0 courses conducted at Brooks AFB. In this regard, the POI for course B3ABY90730-000 (dated 4 December 1990) was reviewed with the assistance of technical school personnel at Brooks AFB. Job inventory tasks were matched to these documents to provide data on TE, TD, and percent first-enlistment personnel performing tasks. In accordance with ATCR 52-22 and for cost effectiveness reasons, if the probability of first-enlistment performance for a POI objective falls below 30 percent, then that objective should not be taught in a resident training course without further justification. For example, it may be justifiable to retain a POI objective having less than 30 percent members performing tasks, based upon high TE or TD ratings for those tasks matched to the objective. Critical or safety items may also be justified for formal training.

A review of the tasks matched to the Bioenvironmental Engineering Specialist POI B3ABY90730-000 indicated many POI objectives were not supported by matching data. Of the 27 matched POI objectives, 16 were not supported by survey data. Some unsupported areas concerned safety control measures involving radiation, laser sources and safety, x-ray procedures, and wastewater treatment options. Several of these areas are apparently safety related, and

TABLE 20

EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)	PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING			TSK DIFF**	ATI***
			FIRST JOB (N=123)	FIRST ENL (N=262)			
<hr/>							
0103 12c(2). Disinfection - Water treatment processes							
<hr/>							
F226 Perform chlorine determinations	A	5.98	70	60	2.71	13	
F228 Perform pH determinations		5.98	76	66	2.61	13	
F211 Evaluate disinfection of water systems		3.90	21	19	5.04	7	
F239 Survey permanent water treatment processes and equipment		3.38	15	13	4.97	7	
<hr/>							
0104 12c(3). Fluoridation							
<hr/>							
F229 Perform tests to determine fluoride levels in water	A	5.34	50	44	3.28	12	
F239 Survey permanent water treatment processes and equipment		3.38	15	13	4.97	7	

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 20 (CONTINUED)

EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)	PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING			TSK DIFF**	ATI***
			FIRST JOB (N=123)	FIRST ENL (N=262)			
0144 12e(6). Aircraft potable program							
F204 Collect aircraft water samples	A	3.50	17	14	3.03	7	
F207 Collect water truck samples for VIP aircraft		2.80	16	13	2.97	2	
0150 13c. Wastewater treatment methods							
G292 Evaluate efficiency of sanitary sewage treatment operations	A	2.00	6	5	5.91	2	

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 20 (CONTINUED)

EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)	PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING			TSK DIFF**	ATI***
			FIRST JOB (N=123)	FIRST ENL (N=262)			
0155 13h. Perform field analysis							
G252 Calibrate chemical oxygen demand meters	1a	2.90	11	13	4.50	7	
G256 Calibrate dissolved oxygen meters		3.36	19	18	4.41	7	
G260 Calibrate hach DR-EL test kits		3.10	23	24	4.58	7	
G306 Perform chemical tests on bodies of water, such as streams, rivers, or lakes		3.80	23	22	5.14	7	
0156 13i. Interpret laboratory results							
G297 Interpret and record results of chemical analyses of waste pollution samples	1a	3.90	17	20	5.21	7	
G292 Evaluate efficiency of sanitary sewage treatment operations		2.00	6	5	5.91	2	

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 20 (CONTINUED)
EXAMPLE STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY
CODES

STS ELEMENTS (WITH SELECTED SAMPLE TASKS)		PROF CODE	TNG EMP*	PERCENT MEMBERS PERFORMING			TSK DIFF**	ATI***
				FIRST JOB (N=123)	FIRST ENL (N=262)			
0297	23a(4). Survey RF areas/overexposure incidents							
E175	Initiate and complete FDA Forms 2536 (Microwave Oven Field Test Record)	2b	4.48	28	36		3.43	15
E188	Make entries on AF Forms 2759 (Radio Frequency Emitter Survey)		5.18	19	30		5.27	12
H355	Investigate suspected RF exposures		3.62	7	9		7.06	7
J426	Calculate probe burnout level		4.20	7	8		5.78	7

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 21

EXAMPLE TASKS WITH MORE THAN 20 PERCENT MEMBERS PERFORMING NOT
MATCHED TO STS ELEMENTS
(PERCENT MEMBERS PERFORMING)

TASKS NOT REFERENCED	TNG EMP*	PERCENT MEMBERS PERFORMING				TSK DIFF**
		FIRST JOB (N=123)	FIRST ENL (N=262)	DAFSC 90750 (N=354)	DAFSC 90770 (N=154)	
<u>PERFORMING ENVIRONMENTAL MONITORING</u>						
G242 Calibrate air-sampling pumps	7.08	80	85	88	63	4.73
G274 Calibrate sound level meters	5.86	67	69	71	51	3.68
G281 Collect air samples for environmental analysis	5.50	52	53	55	33	5.17
G282 Collect breathing zone asbestos samples	6.78	43	51	55	42	5.19
<u>PERFORMING MATHEMATICAL CALCULATIONS</u>						
JJ393 Calculate air changes	6.32	57	64	75	67	4.43
JJ395 Calculate area of a circle	5.48	50	58	70	59	3.36
JJ422 Calculate parts per million (PPM) conversion	5.84	49	55	64	54	4.42
JJ425 Calculate permissible 8 hour exposure	6.56	61	68	74	60	4.66
JJ434 Calculate threshold limit value (TLV) for chemical mixtures	6.38	43	51	62	51	5.18
JJ435 Calculate time-weighted average (TWA)	6.96	60	72	84	70	4.54
JJ438 Calculate ventilation measure	5.78	45	53	63	54	5.02

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

TABLE 21 (CONTINUED)

EXAMPLE TASKS WITH MORE THAN 20 PERCENT MEMBERS PERFORMING NOT
MATCHED TO STS ELEMENTS
(PERCENT MEMBERS PERFORMING)

TASKS NOT REFERENCED	TNG EMP*	PERCENT MEMBERS PERFORMING				TSK DIFF**
		FIRST JOB (N=123)	FIRST ENL (N=262)	DAFSC 90750 (N=354)	DAFSC 90770 (N=154)	
<u>CONDUCTING INDUSTRIAL HYGIENE PROGRAMS</u>						
K445 Collect area air samples from industrial environment	6.52	67	75	79	59	5.12
K446 Collect breathing zone or personal air samples, other than asbestos samples	7.18	68	79	83	59	5.11
K448 Compile data on equipment, aircraft, or other operations which produce noise	5.00	51	62	69	45	5.07
K449 Construct and maintain industrial case files, except tab "F"	6.46	63	74	81	58	5.54
K450 Determine and recommend control methods to protect workers from hazards	6.04	61	72	79	63	6.02
K451 Document industrial hygiene shop visits	6.44	72	82	88	66	4.20
K452 Document shop surveys	6.94	67	79	86	61	4.64
K453 Establish follow-up actions for air-sampling results	5.46	54	64	73	56	5.02
K467 Perform illumination surveys	3.92	74	81	78	53	3.32
<u>MISCELLANEOUS TASKS</u>						
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	6.02	71	72	69	40	3.73
M500 Don or doff protective chemical ensemble	5.34	46	53	62	58	4.07
M510 Operationally maintain AN/PDR 27	5.34	48	52	55	42	3.51
G243 Calibrate AN/PDR 27 meters	4.66	48	52	54	35	3.93
C111 Inspect radiation-detecting equipment	3.82	24	31	34	31	3.78

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

may be considered important in spite of the low percent members performing tasks. Examples of POI objectives not supported by survey data are presented in Table 22. Based on the lack of supporting data reflected in this table, these POI objectives are recommended for deletion from training, unless further justification can be provided. Technical training personnel should thoroughly review the entire listing of POI objectives and delete those not appropriate for first-enlistment training.

Upon further review of the task data, approximately 104 of the 525 inventory task statements having more than 30 percent members performing tasks were not matched to the POI. Some examples of these tasks are:

- initiate and complete AF Forms 2751 (Bulk Material Sampling Data)
- make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)
- perform bulk water sample collection
- calibrate air-sampling pumps
- collect breathing zone asbestos samples
- calculate air changes
- collect area air samples from industrial environment
- compile data on equipment, aircraft, or other operations which produce noise

A more comprehensive list of those tasks not referenced to the POI is provided by category in Table 23. All of these tasks are rated high in terms of TE data, suggesting that these tasks should be considered for inclusion in training. Therefore, a review of these unreferenced tasks is warranted to determine the feasibility of training them formally in the basic course at the technical training center.

There are four other POIs used by training personnel at Brooks AFB TX for instructing 7-skill level personnel on subjects concerning Environmental Protection (EP), Industrial Hygiene Measurements (IHM), Industrial Radiological Hazards (IRH), and Bioenvironmental Engineering Readiness (BEER). The IHM course has strong data support for those objectives matched with data. The tasks matched to the EP course did not have high percent members performing tasks for the 7-skill level members, indicating that adjustments may be necessary. The IRH and BEER courses were somewhat supported by data. POI objectives matched with data for these courses are compiled in Appendix B of this report. Training personnel can evaluate each objective based on the data provided and then assess how to modify these courses to most effectively provide training for AFSC 90770 personnel.

POI OBJECTIVES WITH MINIMAL SUPPORT
(PERCENT FIRST ENLISTMENT PERFORMING)

MATCHED OBJECTIVES	PCT 1ST ENL	TNG EMP*	TSK DIFF**	ATI***
0113 V 2a1. Outline 907X0 responsibilities in reference to biological effects, sources, and safety concerning RF radiation				
H353 Inventory RF sources	16	3.72	6.00	7
H338 Develop recommended controls for suspected radio frequency (RF) exposures	10	2.48	6.71	2
H339 Develop recommended posting of radiation warning placards or stickers	10	1.94	5.21	2
0119 V 4a. Outline laser radiation sources, fundamentals, laser safety, and survey requirements				
H352 Inventory laser sources	7	3.00	5.81	7
H337 Develop recommended controls for laser hazards	5	2.14	6.76	2
H346 Identify hazards resulting from laser operations placards or stickers	7	2.52	7.00	2
0146 VI12a. Describe basic medical/dental survey x-ray procedures				
H332 Conduct radiation programs, other than thermoluminescent (TLD) program	6	3.04	6.26	7
H342 Evaluate operational procedures in radiation exposure areas	15	3.30	5.79	7
H372 Survey X-ray areas	24	4.58	6.44	7

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 22 (CONTINUED)

POI OBJECTIVES WITH MINIMAL SUPPORT
(PERCENT FIRST ENLISTMENT PERFORMING)

MATCHED OBJECTIVES	PCT 1ST ENL	TNG EMP*	TSK DIFF**	ATI***
0157 VII 4a. Identify treatment options for both domestic and industrial wastewater streams				
G291 Evaluate efficiency of industrial waste treatment or disposal methods	16	2.82	5.97	2
G292 Evaluate efficiency of sanitary sewage treatment operations	5	2.00	5.91	2
G299 Monitor base effluent sewage to city treatment facilities	13	2.38	5.25	2
0165 VII 8a. Identify sources and types of air pollution				
G294 Identify air emission sources	9	2.88	6.09	7
0171 VII 11a. Identify sources and characteristics for solid wastes normally found on an Air Force Base				
G290 Evaluate efficiency of garbage and refuse collection methods	5	1.20	5.01	2
G291 Evaluate efficiency of industrial waste treatment or disposal methods	16	2.82	5.97	2

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 23

TASKS NOT REFERENCED TO POI 3ABY90730 WITH
GREATER THAN 30 PERCENT MEMBERS PERFORMING
(PERCENT FIRST ENLISTMENT PERFORMING)

<u>TASKS</u>					
<u>PCT</u> <u>1ST</u> <u>ENL</u>		<u>TNG</u> <u>EMP*</u>	<u>TSK</u> <u>DIFF**</u>	<u>ATI***</u>	
<u>PERFORMING GENERAL ADMINISTRATIVE PROCEDURES</u>					
E159	Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	77	5.98	3.49	18
E161	Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	86	6.34	4.36	18
E162	Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	85	6.02	4.23	18
E164	Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	75	6.36	4.70	18
E168	Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	76	6.18	4.91	18
E171	Initiate and complete computer-generated AF Forms 2756A & B (Noise Dosimeter Survey)	67	5.46	4.18	18
E189	Make entries on AF Forms 2761 (Hazardous Materials Data)	79	6.52	4.92	18

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 23 (CONTINUED)

TASKS NOT REFERENCED TO POI 3ABY90730 WITH
GREATER THAN 30 PERCENT MEMBERS PERFORMING
(PERCENT FIRST ENLISTMENT PERFORMING)

TASKS	PCT 1ST ENL	TNG EMP*	TSK DIFF**	ATI***
<u>PERFORMING ENVIRONMENTAL MONITORING</u>				
G242 Calibrate air-sampling pumps	85	7.08	4.73	18
G267 Calibrate noise dosimeters	76	6.22	4.45	18
G274 Calibrate sound-level meters	69	5.86	3.68	18
G281 Collect air samples for environmental analysis	53	5.50	5.17	18
G282 Collect breathing zone asbestos samples	51	6.78	5.19	18
<u>PERFORMING MATHEMATICAL CALCULATIONS</u>				
J393 Calculate air changes	64	6.32	4.43	18
J395 Calculate area of a circle	58	5.48	3.36	18
J422 Calculate parts per million (PPM) conversion	55	5.84	4.42	18
J425 Calculate permissible 8-hour exposure	68	6.56	4.66	18
J434 Calculate threshold limit value (TLV) for chemical mixtures	51	6.38	5.18	18
J435 Calculate time-weighted average (TWA)	72	6.96	4.54	18
J438 Calculate ventilation measure	53	5.78	5.02	18

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

TABLE 23 (CONTINUED)

TASKS NOT REFERENCED TO POI 3ABY90730 WITH
GREATER THAN 30 PERCENT MEMBERS PERFORMING
(PERCENT FIRST ENLISTMENT PERFORMING)

TASKS	PCT 1ST ENL	TNG EMP*	TSK DIFF**	ATI***
<u>CONDUCTING INDUSTRIAL HYGIENE PROGRAMS</u>				
K445 Collect area air samples from industrial environment	75	6.52	5.12	18
K446 Collect breathing zone or personal air samples, other than asbestos samples	79	7.18	5.11	18
K448 Compile data on equipment, aircraft, or other operations which produce noise	62	5.00	5.07	18
K449 Construct and maintain industrial case files, except tab "F"	74	6.46	5.54	18
K451 Document industrial hygiene shop visits	82	6.44	4.20	18
K453 Establish follow-up actions for air-sampling results	64	5.46	5.02	18
K454 Interpret permissible exposure limit (PEL) values and notations	65	6.54	5.28	18
K455 Interpret results of air sample analyses and make recommendations to OPR	54	5.62	5.67	18
K460 Investigate possible chemical health hazards	66	5.26	5.99	18
K461 Investigate possible physical health hazards	55	4.90	5.71	18

* Training Emphasis (TE) has an average of 2.87 and a Standard Deviation of 1.81 (High TE ratings are 4.68 and above)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0 (High TD ratings are 6.0 and above)

*** Automated Training Indicator (ATI) ratings are based on high percent members performing for first-term members, high training emphasis (TE), and sufficient task difficulty (TD)

JOB SATISFACTION ANALYSIS

An important part of the OSR process involves the analysis of job satisfaction data. These data can be used by career ladder managers to gain a better understanding of those factors affecting job performance of AFSC 907X0 personnel. These factors include expressed job interest, utilization of talents and training, and reenlistment intentions. This survey compared job satisfaction indicators on three levels. Table 24 displays job satisfaction indicators for AFSC 907X0 TAFMS groups and a comparative sample group consisting of other medical AFSCs surveyed in 1990. Table 25 compares job satisfaction for the current survey with the previous survey completed in 1985. Table 26 displays job satisfaction data for the survey specialty jobs.

The overall job satisfaction expressed in these three tables was very good for all concerned groups. Data comparisons in Table 24 suggest that the AFSC 907X0 members are more satisfied with their jobs compared to the other medical specialties surveyed in 1990. Two exceptions are the "reenlistment intentions" figures for the first-term and second-term groups. About 45 percent of the first-enlistment members have indicated they probably will not reenlist. This compares to 43 percent for the second-term group. But considering the positive responses received on the other job satisfaction variables, these low reenlistment indicators may not be a reflection of poor job satisfaction. Instead, they suggest that outside factors may be influencing "reenlistment intentions."

A comparison of 1991 job satisfaction data with TAFMS groups surveyed in 1985 revealed that job satisfaction has improved somewhat since the previous survey (see Table 25). Satisfaction indicators have improved most for the first-enlistment personnel, but some improvement is shown for the other TAFMS groups as well. Once again, the only exceptions to these positive figures are the first- and second-term "reenlistment intentions."

Job satisfaction data presented in Table 26 for the survey specialty jobs reflect high satisfaction overall, particularly for the supervisory and technical training groups. The lowest indicators were reported by the Administrative Specialists IJT group, where four out of six members indicated they probably would not reenlist. The "job interest" figure for this group was a relatively meager 67 percent, which suggests that this group is not fully satisfied with the scope of the job they perform. As has been suggested by members who work in this AFSC, job opportunities in the civilian marketplace may also negatively affect attrition rates for certain TAFMS groups.

COMPARISON OF JOB SATISFACTION INDICATORS FOR 907X0 AND
COMPARATIVE SAMPLE GROUP
(PERCENT MEMBERS RESPONDING)*

	<u>1-48 MOS TAFMS</u>		<u>49-96 MOS TAFMS</u>		<u>97+ MOS TAFMS</u>	
	1991 (N=262)	COMP SAMPLE** (N=751)	1991 (N=138)	COMP SAMPLE** (N=503)	1991 (N=229)	COMP SAMPLE** (N=687)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	88	70	83	71	89	82
SO-SO	8	17	9	18	7	12
DULL	4	13	7	11	4	6
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	88 12	77 23	89 12	75 24	88 11	86 14
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	91 8	86 14	90 9	82 18	87 12	84 15
<u>SENSE OF ACCOMPLISHMENT:</u>						
SATISFIED	76	70	77	66	76	76
NEUTRAL	10	14	11	12	5	8
DISSATISFIED	13	16	12	21	19	16
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	55	57	57	69	70	73
NO, OR PROBABLY NO	45	43	43	30	8	7
PLAN TO RETIRE	0	-	0	-	21	20

* Columns may not add to 100 percent due to rounding or lack of response

** Comparative sample of Medical AFSCs surveyed in 1990, including 904X0 (Cardiopulmonary Lab) 908X0 (Environmental Medicine), 913X1 (Occupational Therapy), and 915X0 (Medical Materiel)

- Indicates less than 1 percent responding

TABLE 25

COMPARISON OF JOB SATISFACTION INDICATORS FOR
CURRENT 907X0 PERSONNEL WITH 1985 SURVEY SAMPLE GROUPS
(PERCENT MEMBERS RESPONDING)*

	<u>1-48 MOS TAFMS</u>		<u>49-96 MOS TAFMS</u>		<u>97+ MOS TAFMS</u>	
	1991 (N=262)	1985** (N=217)	1991 (N=138)	1985** (N=160)	1991 (N=229)	1985** (N=221)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	88	82	83	87	89	87
SO-SO	8	9	9	6	7	8
DULL	4	8	7	7	4	4
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	88 12	77 23	89 12	84 16	88 11	84 16
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	91 8	86 13	90 9	82 18	87 12	87 13
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	55	62	57	66	70	71
NO, OR PROBABLY NO	45	37	43	33	8	10
PLAN TO RETIRE	0	0	0	1	21	19

* Columns may not add to 100 percent due to rounding or lack of response

** Responses come from 907X0 personnel surveyed in 1985

- Indicates less than 1 percent responding

TABLE 26

JOB SATISFACTION DATA FOR CLUSTERS AND JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	ADMINISTRATION SPECIALISTS IJT	WATER MONITORING PERSONNEL CLUSTER	JOB TYPES		INDUSTRIAL HYGIENE CLUSTER
			WATER MONITORING SPECIALISTS	WATER MONITORING SUPERVISORS	
<u>EXPRESSED JOB INTEREST:</u>					
INTERESTING	67	86	86	100	88
SO-SO	33	11	10	0	7
DULL	0	3	5	0	5
<u>PERCEIVED UTILIZATION OF TALENTS:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	83 17	85 14	81 19	89 11	89 11
<u>PERCEIVED UTILIZATION OF TRAINING:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	100 0	92 9	91 10	89 11	92 8
<u>REENLISTMENT INTENTIONS:</u>					
YES, OR PROBABLY YES	33	40	38	33	63
NO, OR PROBABLY NO	67	60	62	67	33
PLAN TO RETIRE	0	0	0	0	3

* Columns may not add to 100 percent due to rounding or a lack of response

TABLE 26 (CONTINUED)

JOB SATISFACTION DATA FOR CLUSTERS AND JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	JOB TYPES			RADIOLOGICAL HEALTH IJT	TECHNICAL TRAINING CLUSTER
	NCOIC/ SUPERVISORY CLUSTER	FIRST-LINE SUPERVISORS	GENERAL MANAGER/ SUPERINTENDENT PERSONNEL		
<u>EXPRESSED JOB INTEREST:</u>					
INTERESTING	93	92	100	78	100
SO-SO	4	4	0	22	0
DULL	3	4	0	0	0
<u>PERCEIVED UTILIZATION OF TALENTS:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	91 8	89 12	100 0	100 0	90 10
<u>PERCEIVED UTILIZATION OF TRAINING:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	91 10	91 10	89 11	89 11	90 10
<u>REENLISTMENT INTENTIONS:</u>					
YES, OR PROBABLY YES	54	63	33	67	70
NO, OR PROBABLY NO	7	8	0	22	10
PLAN TO RETIRE	39	29	67	11	20

* Columns may not add to 100 percent due to rounding or a lack of response

IMPLICATIONS

The Bioenvironmental Engineering career ladder has not changed significantly in terms of tasks and jobs performed since the previous survey in 1985. Any apparent differences in jobs are a function of changes in the job inventory task list from the last survey to the present one. Career ladder progression for the 3- and 5-skill level personnel is limited to technical activities. As members advance to the 7-skill level, they perform a lot more supervision, showing clear progression. But the 9-skill level job appears to be very similar to the 7-skill level job, indicating no significant progression after the 7-skill level. However, a substantial increase in supervisory and managerial responsibilities is noted as members attain their CEM Code. This reflects a more typical career ladder progression pattern. The AFR 39-1 Specialty Descriptions accurately portray the job performed at each DAFSC level. A change was recommended to add "calibration of equipment" duties to the 3-/5-skill level and 7-skill level descriptions. Overall job satisfaction for career ladder members is very good, though "reenlistment intentions" for the first- and second-term members reflect problem areas that should be addressed.

Analysis of the AFSC 907X0 STS reflected support for most areas, but there are several unsupported areas. Some of the questionable items involve performing certain mathematical calculations, waste treatment operations, and ionizing radiation calculations. These STS items should be closely reviewed to ascertain whether they belong in the STS. Some of these areas may be critical or safety items and may be applicable to the STS in spite of low performance figures. There were also several STS 3-skill level proficiency codes recommended for changes. Some tasks not referenced to the STS which had supporting data are also recommended for review and possible inclusion in future revisions of the training program.

A comprehensive analysis of POI B3ABY90730-0000, dated 4 December 1990, revealed several unsupported POI objectives. Some of these objectives refer to radiation and laser safety procedures, which may be justified for training in spite of low percent members performing tasks. There were also a large number of tasks performed by significant numbers of first-enlistment personnel, which also had high TE ratings, that were not matched to the POI. These tasks may warrant inclusion in the future. Training personnel should review these objectives and tasks to determine what is most important for training in the basic course.

APPENDIX A
SELECTED REPRESENTATIVE TASKS PERFORMED BY
CAREER LADDER STRUCTURE GROUPS

TABLE I
REPRESENTATIVE TASKS PERFORMED BY
ADMINISTRATION SPECIALISTS IJT
(ST0084)

GROUP SIZE: 6	AVERAGE TICF: 16 MONTHS	
PREDOMINATE PAYGRADES: E2	AVERAGE TAFMS: 20 MONTHS	
PERCENT OF SAMPLE: 1%	AVERAGE # TASKS PERFORMED: 26	

TASKS	PERCENT MEMBERS PERFORMING
E173 Initiate and complete DD Forms 2214 (Noise Survey)	100
G242 Calibrate air-sampling pumps	100
E161 Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	100
E166 Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	83
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	83
E184 Make entries on AF Forms 1800 (Operator's Inspection Guide and Trouble Report (General Purpose Vehicles))	67
G267 Calibrate noise dosimeters	67
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	67
E171 Initiate and complete computer-generated AF Forms 2756A & B (Noise Dosimeter Survey)	67
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	67
E168 Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	67
K445 Collect area air samples from industrial environment	67
E156 Establish or assign issue exception (IEX) codes 8 and 9 for chemicals	67
E194 Operationally maintain military motor vehicles	50
E163 Initiate and complete AF Forms 2757 (Illumination Survey Data Sheet)	50
G274 Calibrate sound-level meters	50
G268 Calibrate octave band noise analyzers	50
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	50
E199 Review and complete AF Forms 2750 (Industrial Hygiene Sampling Data)	50
K446 Collect breathing zone or personal air samples other than asbestos samples	50
E167 Initiate and complete AF Forms 2763 (Industrial Hygiene Ventilation Presurvey)	50

TABLE II
REPRESENTATIVE TASKS PERFORMED BY
WATER MONITORING PERSONNEL CLUSTER
(ST0039)

GROUP SIZE: 35
PREDOMINATE PAYGRADES: E2
PERCENT OF SAMPLE: 6%

AVERAGE TICF: 17 MONTHS
AVERAGE TAFMS: 26 MONTHS
AVERAGE # TASKS PERFORMED: 66

TASKS	PERCENT MEMBERS PERFORMING
F220 Perform bacteriological analyses of drinking water by membrane filter technique	97
G266 Calibrate miran analyzers	91
F228 Perform pH determinations	91
F206 Collect potable water samples for analyses	89
F238 Sterilize equipment and water bottles	89
F217 Interpret and record bacteriological analyses of water for total coliform	86
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	86
F224 Perform bacteriological analyses of drinking water for total coliform	83
E191 Make entries on AF Forms 708 (Swimming Pool Operational Log)	83
F237 Ship drinking water samples for chemical or radiological analyses	83
F225 Perform bulk water sample collection	83
F213 Interpret and record bacteriological analyses of water by membrane filter technique	80
F234 Preserve drinking samples for chemical analyses	71
F229 Perform tests to determine fluoride levels in water	69
F218 Interpret and record results of chemical analyses of drinking water samples	69
E159 Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	66
E203 Update potable sampling water logs	63
F215 Interpret and record bacteriological analyses of water for fecal coliform	60
F208 Collect well water samples for total chemical analyses	60
F235 Record contracted water laboratory results	51
B50 Direct biological surveillance of drinking water	49
F222 Perform bacteriological analyses of drinking water for fecal coliform	49
C98 Evaluate laboratory test results	46

TABLE III
 REPRESENTATIVE TASKS PERFORMED BY
 WATER MONITOR SPECIALISTS
 (ST0063)

GROUP SIZE: 21
 PREDOMINATE PAYGRADES: E2
 PERCENT OF SAMPLE: 3%

AVERAGE TICF: 12 MONTHS
 AVERAGE TAFMS: 22 MONTHS
 AVERAGE # TASKS PERFORMED: 54

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
F226 Perform chlorine determinations	100
F228 Perform pH determinations	95
F220 Perform bacteriological analyses of drinking water by membrane filter technique	95
F206 Collect potable water samples for analyses	90
E191 Make entries on AF Forms 708 (Swimming Pool Operational Log)	90
F213 Interpret and record bacteriological analyses of water by membrane filter technique	86
F217 Interpret and record bacteriological analyses of water for total coliform	86
F238 Sterilize equipment and water bottles	86
F237 Ship drinking water samples for chemical or radiological analyses	86
F224 Perform bacteriological analyses of drinking water for total coliform	81
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	81
F225 Perform bulk water sample collection	81
F234 Preserve drinking samples for chemical analyses	76
F218 Interpret and record results of chemical analyses of drinking water samples	71
F229 Perform tests to determine fluoride levels in water	71
E203 Update potable sampling water logs	67
E159 Initiate and complete AF Forms 2751 (Bulk Material Sampling Data)	67
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	62
F208 Collect well water samples for total chemical analyses	48
F235 Record contracted water laboratory results	48
F241 Transport drinking water samples for chemical or radiological analyses	48
C98 Evaluate laboratory test results	43
B50 Direct biological surveillance of drinking water	38

TABLE IV
REPRESENTATIVE TASKS PERFORMED BY
WATER MONITORING SUPERVISORS
(ST0076)

GROUP SIZE: 9
PREDOMINATE PAYGRADES: E4
PERCENT OF SAMPLE: 1%

AVERAGE TICF: 32 MONTHS
AVERAGE TAFMS: 37 MONTHS
AVERAGE # TASKS PERFORMED: 110

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
B53 Direct chemical surveillance of nonpotable water	100
F206 Collect potable water samples for analyses	100
F220 Perform bacteriological analyses of drinking water by membrane filter technique	100
F224 Perform bacteriological analyses of drinking water for total coliform	100
F208 Collect well water samples for total chemical analyses	100
B51 Direct biological surveillance of swimming pools	100
B52 Direct chemical surveillance of drinking water	100
E160 Initiate and complete AF Forms 2752A & B (Environmental Sampling Data)	100
F237 Ship drinking water samples for chemical or radiological analyses	100
F234 Preserve drinking samples for chemical analyses	100
B50 Direct biological surveillance of drinking water	89
F217 Interpret and record bacteriological analyses of water for total coliform	89
F218 Interpret and record results of chemical analyses of drinking water samples	89
F238 Sterilize equipment and water bottles	89
F225 Perform bulk water sample collection	89
E191 Make entries on AF Forms 708 (Swimming Pool Operational Log)	89
F228 Perform pH determinations	78
F235 Record contracted water laboratory results	78
F226 Perform chlorine determinations	78
F213 Interpret and record bacteriological analyses of water by membrane filter technique	78
B54 Direct environmental protection programs	78
E178 Maintain administrative files	78
G306 Perform chemical tests on bodies of water, such as streams, rivers, or lakes	78
E203 Update potable sampling water logs	78
G285 Collect waste water samples for analyses	67

TABLE V
REPRESENTATIVE TASKS PERFORMED BY
INDUSTRIAL HYGIENE CLUSTER
(ST0037)

GROUP SIZE: 451
PREDOMINATE PAYGRADES: E4
PERCENT OF SAMPLE: 71%

AVERAGE TICF: 59 MONTHS
AVERAGE TAFMS: 73 MONTHS
AVERAGE # TASKS PERFORMED: 134

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
K451 Document industrial hygiene shop visits	97
K469 Perform noise surveys	96
E161 Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	96
K452 Document shop surveys	95
K468 Perform industrial ventilation surveys	94
E173 Initiate and complete DD Forms 2214 (Noise Survey)	93
K446 Collect breathing zone or personal air samples other than asbestos samples	93
G242 Calibrate air-sampling pumps	93
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	92
E162 Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	90
E163 Initiate and complete AF Forms 2757 (Illumination Survey Data Sheet)	90
J435 Calculate time-weighted average (TWA)	90
K449 Construct and maintain industrial case files except tab "F"	89
K450 Determine and recommend control methods to protect workers from hazards	89
K467 Perform illumination surveys	89
E166 Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	89
E168 Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	89
E164 Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	88
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	88
K445 Collect area air samples from industrial environment	88
K460 Investigate possible chemical health hazards	85
K448 Compile data on equipment, aircraft, or other operations which produce noise	79

TABLE VI
REPRESENTATIVE TASKS PERFORMED BY
NCOIC/SUPERVISORY CLUSTER
(ST0038)

GROUP SIZE: 72
PREDOMINATE PAYGRADES: E7
PERCENT OF SAMPLE: 11%

AVERAGE TICF: 172 MONTHS
AVERAGE TAFMS: 211 MONTHS
AVERAGE # TASKS PERFORMED: 133

TASKS	PERCENT MEMBERS PERFORMING
A5 Determine work priorities	93
B48 Counsel personnel	90
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	88
C116 Write EPRs	86
C114 Perform self-inspections	85
C87 Evaluate administrative forms, files, or procedures	85
A4 Determine requirements for space, personnel, equipment, or supplies	83
A29 Schedule leaves	82
A13 Develop work methods or procedures	81
B49 Direct bioenvironmental engineering activities	79
C117 Write staff studies, surveys, or special reports	79
C86 Determine resource requirements	79
A6 Develop budget or financial requirements	79
B75 Orient newly assigned personnel	79
A43 Write justifications for procurement of equipment, supplies, or work areas	78
C88 Evaluate budgeting or financial requirements	78
B73 Interpret policies, directives, or procedures for subordinates	76
B44 Assign personnel to duty positions	76
B45 Conduct briefings	76
A30 Serve on aerospace medical councils	75
A17 Establish work schedules	74
A15 Establish performance standards	74
B79 Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	72
B70 Implement self-inspection programs	71
B46 Conduct staff meetings	71
A11 Develop self-inspection programs	69
A26 Research or edit inputs for recurring reports	65
E196 Research technical publications	64
E178 Maintain administrative files	63

TABLE VII
REPRESENTATIVE TASKS PERFORMED BY
FIRST LINE SUPERVISORS
(ST0067)

GROUP SIZE: 52
PREDOMINATE PAYGRADES: E7
PERCENT OF SAMPLE: 8%

AVERAGE TICF: 165 MONTHS
AVERAGE TAFMS: 203 MONTHS
AVERAGE # TASKS PERFORMED: 157

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
A5 Determine work priorities	100
B48 Counsel personnel	98
C114 Perform self-inspections	92
B49 Direct bioenvironmental engineering activities	90
C116 Write EPRs	90
C117 Write staff studies, surveys, or special reports	88
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	88
A30 Serve on aerospace medical councils	88
C87 Evaluate administrative forms, files, or procedures	87
A17 Establish work schedules	85
A13 Develop work methods or procedures	85
A8 Develop inspection schedules	85
A6 Develop budget or financial requirements	85
A43 Write justifications for procurement of equipment, supplies, or work areas	83
B79 Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	81
D125 Conduct OJT	81
C86 Determine resource requirements	79
B44 Assign personnel to duty positions	79
E183 Maintain survey schedules	77
A15 Establish performance standards	77
C88 Evaluate budgeting or financial requirements	77
B73 Interpret policies, directives, or procedures for subordinates	75
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	75
C97 Evaluate inspection reports or procedures	75
B70 Implement self-inspection programs	73
A26 Research or edit inputs for recurring reports	73
B46 Conduct staff meetings	73
B55 Direct industrial hygiene surveillance of workplaces	69
E178 Maintain administrative files	67

TABLE VIII
REPRESENTATIVE TASKS PERFORMED BY
GENERAL MANAGER/SUPERINTENDENT PERSONNEL
(ST0083)

GROUP SIZE: 9	AVERAGE TICF: 208 MONTHS
PREDOMINATE PAYGRADES: E7-E9	AVERAGE TAFMS: 257 MONTHS
PERCENT OF SAMPLE: 1%	AVERAGE # TASKS PERFORMED: 64

TASKS	PERCENT MEMBERS PERFORMING
C116 Write EPRs	100
C88 Evaluate budgeting or financial requirements	100
B44 Assign personnel to duty positions	100
A4 Determine requirements for space, personnel, equipment, or supplies	100
C86 Determine resource requirements	100
C114 Perform self-inspections	89
B73 Interpret policies, directives, or procedures for subordinates	89
C87 Evaluate administrative forms, files, or procedures	89
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	89
A29 Schedule leaves	89
A13 Develop work methods or procedures	89
A11 Develop self-inspection programs	89
A16 Establish publication libraries	89
C110 Inspect personnel	89
A5 Determine work priorities	78
A6 Develop budget or financial requirements	78
C105 Evaluate self-inspection programs	78
A15 Establish performance standards	78
B46 Conduct staff meetings	78
B70 Implement self-inspection programs	78
C108 Indorse Enlisted Performance Report (EPR)	78
A20 Plan agenda for staff meetings	78
E178 Maintain administrative files	67
B45 Conduct briefings	67
B48 Counsel personnel	67
A30 Serve on aerospace medical councils	67
B75 Orient newly assigned personnel	67
C103 Evaluate safety programs	67
B79 Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	56
A41 Write civilian position descriptions	56

TABLE IX
REPRESENTATIVE TASKS PERFORMED BY
RADIOLOGICAL HEALTH IJT
(ST0047)

GROUP SIZE: 9
PREDOMINATE PAYGRADES: E6
PERCENT OF SAMPLE: 1%

AVERAGE TICF: 111 MONTHS
AVERAGE TAFMS: 129 MONTHS
AVERAGE # TASKS PERFORMED: 93

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
H350 Inspect sources of ionizing radiation	100
H342 Evaluate operational procedures in radiation exposure areas	100
J429 Calculate roentgen per hour output	100
A5 Determine work priorities	100
H336 Develop recommended controls for ionizing radiation exposure	100
H335 Determine radiation doses or dose rates	89
J413 Calculate exponential radiation decay	89
C111 Inspect radiation detecting equipment	89
A14 Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	89
H372 Survey X-ray areas	89
H360 Operationally check radiation detection (RADIAC) equipment	89
J416 Calculate half life-specific activity	89
H371 Survey radioisotopes	78
C117 Write staff studies, surveys, or special reports	78
H369 Survey handling, storage, transportation, or receipt of radioactive materials	78
J407 Calculate curie conversions	78
H351 Interpret and record analysis results of isotope swipes	78
H354 Investigate abnormal exposures or overexposures to ionizing radiation	78
H349 Inspect or evaluate personnel exposure or dosimetry records	78
H332 Conduct radiation programs, other than thermoluminescent (TLD) program	67
J417 Calculate inverse square law	67
H331 Compute radiation intensity problems	67
B57 Direct ionizing radiation safety programs	67
J427 Calculate rates and ratios	56
A13 Develop work methods or procedures	56
B76 Schedule equipment repairs and calibrations	44

TABLE X
REPRESENTATIVE TASKS PERFORMED BY
TECHNICAL TRAINING CLUSTER
(ST0055)

GROUP SIZE: 10
PREDOMINATE PAYGRADES: E6-E7
PERCENT OF SAMPLE: 1%

AVERAGE TICF: 172 MONTHS
AVERAGE TAFMS: 184 MONTHS
AVERAGE # TASKS PERFORMED: 40

TASKS	PERCENT MEMBERS PERFORMING
D154 Write test questions	100
D148 Prepare lesson plans	90
D142 Evaluate training progress of students	90
D118 Administer tests	90
D141 Evaluate training methods or techniques	90
D136 Develop resident course or career development course (CDC) curriculum materials	80
D149 Procure training aids, space, or equipment	80
D128 Conduct resident course classroom training	70
D134 Determine resident course training requirements	70
D151 Score tests	70
D139 Evaluate instructor performance	70
J395 Calculate area of a circle	70
J432 Calculate scientific notation	70
J430 Calculate roots	70
D150 Schedule training sessions	60
D144 Participate in training conferences or briefings	60
J409 Calculate dimensional analysis	60
J440 Calculate volume of a cylinder	60
J403 Calculate common logarithms	60
J414 Calculate frequency or velocity calculation	60
J427 Calculate rates and ratios	60
J441 Calculate volume of a rectangle	60
J394 Calculate airborne contamination	60
D146 Plan instructional systems development processes	50
J435 Calculate time-weighted average (TWA)	50
J438 Calculate ventilation measure	50
D121 Assign resident course instructors	50
J412 Calculate exponential powers	50
D127 Conduct proper use of designated personal protection equipment training	50
J404 Calculate compliance factor	50
J399 Calculate area of a triangle	50
B48 Counsel personnel	30

APPENDIX B

**PLANS OF INSTRUCTION (POI) FOR 90770 COURSES WITH
POI OBJECTIVES MATCHED TO OCCUPATIONAL SURVEY DATA
(SURVEY RESPONDENTS REPRESENT 7-SKILL LEVEL PERSONNEL)**

B3AZY90770-004, INDUSTRIAL RADIOLOGICAL HAZARDS USAF SCHOOL
OF AEROSPACE MEDICINE, DATED 13 SEPTEMBER 1988

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED
(PERCENT MEMBERS PERFORMING)

	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0013 II 5a. Calculate activity, specific activity, and gamma radiation exposure rate. CTS: 1e; MEAS: W										
J432 Calculate scientific notation	4.00	21	26	25	25	31	5	17	4.74	7
H335 Determine radiation doses or dose rates	3.28	10	16	13	12	16	0	0	6.25	7
J407 Calculate curie conversions	2.56	6	9	11	8	12	11	17	5.74	2
J421 Calculate natural logarithms	2.90	19	14	13	18	12	11	17	5.39	7
H331 Compute radiation intensity problems	1.70	3	10	9	6	12	0	0	6.61	2
J413 Calculate exponential radiation decay	2.44	8	14	11	11	11	5	17	5.98	2
0020 III 2a. Explain the basic principles of radiation protection and determine the appropriate radiation protection methods/devices. CTS: 2b; MEAS: W										
H336 Develop recommended controls for ionizing radiation exposure	2.62	8	20	19	12	26	11	0	6.41	2
0025 IV 2a. Identify the requirements and restrictions for shipment of radioactive material. CTS: 3b; MEAS: W										
H342 Evaluate operational procedures in radiation exposure areas	3.30	15	28	25	21	31	5	17	5.79	7
H329 Collect, pack, or ship isotope swipes	3.82	10	17	15	13	17	16	0	4.36	7

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0027	IV 3a. State the requirements for handling, storing and identifying radioactive material. CTS: 3c; MEAS: W										
H342	Evaluate operational procedures in radiation exposure areas	3.30	15	28	25	21	31	5	17	5.79	7
H339	Develop recommended posting of radiation warning placards or stickers	1.94	10	25	22	17	26	21	0	5.21	2
H332	Conduct radiation programs, other than thermoluminescent (TLD) program	3.04	6	14	15	9	22	5	0	6.26	7
H363	Perform swipe tests	4.58	16	23	17	19	20	11	0	4.20	7
H361	Perform leak testing of sealed radiological sources	4.14	19	25	16	22	19	16	0	4.50	7
H359	Monitor radioisotope permit programs	2.04	2	10	14	5	18	21	0	6.45	2
H351	Interpret and record analysis results of isotope swipes	2.80	7	11	9	8	12	5	17	5.35	2
H364	Post radiation warning placards	2.46	6	14	8	9	10	5	0	3.07	2
H356	Issue radiation stickers	1.98	12	19	9	15	9	5	0	3.25	2
0030	IV 5. Nuclear Medicine										
H333	Coordinate disposal methods for radioactive waste with San Antonio Air Logistics Center	1.92	2	7	12	5	14	16	0	5.94	2
H340	Direct the disposal of radioactive waste	2.12	3	8	11	6	11	26	33	6.74	2

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0031	IV 5a. Recognize radioisotope handling procedures in a nuclear medicine laboratory. CTS: 3e; MEAS: W										
H371	Survey radioisotopes	2.76	5	8	9	6	12	0	17	5.89	2
H345	Evaluate radiological decontamination procedures of personnel, other than disaster operations	2.54	2	5	7	3	10	0	0	6.22	2
H344	Evaluate radiological decontamination procedures of equipment, other than disaster operations	2.60	2	4	6	3	9	0	0	6.29	2
H330	Compile data on radiation accidents, such as laboratory spills	2.16	3	7	4	4	5	5	0	6.03	2
0036	V 2a. Identify basic health hazard control considerations for industrial radiography installations. CTS: 4b; MEAS: W										
H372	Survey X-ray areas	4.58	24	39	34	33	38	21	17	6.44	7
H350	Inspect sources of ionizing radiation	3.98	19	33	23	25	28	16	17	6.09	7
0038	V 3a. Recognize and select monitoring devices to perform ionizing radiation surveys. CTS: 4c; MEAS: W										
H372	Survey X-ray areas	4.58	24	39	34	33	38	21	17	6.44	7
H352	Inventory laser sources	3.00	7	19	17	11	19	16	17	5.81	7
J429	Calculate roentgen per hour output	2.80	8	16	13	12	14	11	0	4.95	2

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

TNG EMP 1ST ENL 2ND ENL CAR 907 EER 50 907 70 907 90 00 TSK DIF ATT

0043 VI 2a. Recognize the functions and responsibilities of the personnel dosimetry program. CTS: 5b; MEAS: W

H367	Review TLD monitoring results	4.50	28	33	30	30	38	37	0	4.62	7
E202	Review OEHL Forms 1523	3.38	20	23	22	23	27	16	0	4.20	7
H349	Inspect or evaluate personnel exposure or dosimetry records	3.54	15	29	19	20	27	11	0	5.50	7
H369	Survey handling, storage, transportation, or receipt of radioactive materials	3.76	14	23	20	18	25	11	17	5.36	7
H341	Enroll personnel on TLD programs	5.88	44	41	20	42	22	21	0	3.66	12
H357	Issue, collect, or exchange TLD dosimeter	5.06	41	37	20	39	21	16	0	3.43	12
E193	Make entries on OEHL Forms 1523 (Dosimetry Data)	4.12	24	25	16	25	19	5	0	3.59	7
H368	Ship or store TLD dosimeters	5.00	37	34	17	34	19	16	0	3.07	12

0046 VII 1a. Calculate problems and know the appropriate equipment and techniques to monitor the RF Protection Program. CTS: 6a; MEAS: W

H343	Evaluate potential RF radiation exposure	3.42	27	42	34	36	36	21	17	6.46	7
H353	Inventory RF sources	3.72	16	41	31	27	34	26	17	6.00	7
J423	Calculate permissible exposure limits (PEL) for various MHz frequencies	4.18	18	30	28	24	28	21	33	5.26	7
H355	Investigate suspected RF exposures	3.62	9	25	21	15	24	21	0	7.06	7
H338	Develop recommended controls for suspected radio frequency (RF) exposures	2.48	10	21	19	14	22	21	0	6.71	2
J426	Calculate probe burnout level	4.20	8	25	18	16	19	26	0	5.78	7
H361	Perform leak testing of sealed radiological sources	4.14	19	25	16	22	19	16	0	4.50	7
H346	Identify hazards resulting from laser operations	2.52	7	12	9	8	10	11	17	7.00	2

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG	1ST	2ND	CAR	907	907	907	907	907	TSK	
		EMP	ENL	ENL	EER	50	70	90	00	00	DIF	ATI
0050	VII 3a. Recognize the parameters required to evaluate the adequacy of protective measures and work practices in laser operations.											
H352	Inventory laser sources	3.00	7	19	17	11	19	16	17	5.81	7	
H337	Develop recommended controls for laser hazards	2.14	5	9	8	6	10	11	0	6.76	2	

B3AZY90770 001, ENVIRONMENTAL PROTECTION USAF SCHOOL OF
AEROSPACE MEDICINE, DATED MARCH 1990

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED
(PERCENT MEMBERS PERFORMING)

	TNG	1ST	2ND	CAR	907	907	907	907	907	TSK	
	EMP	ENL	ENL	EER	50	70	90	00	00	DIF	ATI
0018 V 3a. Understand principles of wastewater management. PC: B											
G291 Evaluate efficiency of industrial waste treatment or disposal methods	2.82	16	24	15	19	17	21	17	17	5.97	2
G299 Monitor base effluent sewage to city treatment facilities	2.38	13	7	10	10	12	5	0	0	5.25	2
F239 Survey permanent water treatment processes and equipment	3.38	13	14	9	12	11	5	17	17	4.97	7
G292 Evaluate efficiency of sanitary sewage treatment operations	2.00	5	4	8	5	8	5	17	17	5.91	2
0020 V 4a. Understand how aquatic biomonitoring is used in water pollution investigations. PC: B											
G301 Monitor fish kills	3.04	10	10	10	12	8	16	0	0	6.11	7
0021 V 5. OEHL Aquatic Biomonitoring Services											
G309 Perform Installation Restoration Program (IRP) sampling	1.78	7	7	3	6	4	11	0	0	5.43	2
G288 Determine absolute elevation of water levels	.30	1	1	3	1	2	5	0	0	5.96	2
0023 V 6a. Understand basic principles of Groundwater Hydrology. PC: B											
G271 Calibrate pH meters	3.60	30	25	14	27	17	5	0	0	3.87	15
G260 Calibrate hach DR-EL test kits	3.10	24	25	11	21	13	5	0	0	4.58	7
G256 Calibrate dissolved oxygen meters	3.36	18	10	11	15	12	5	0	0	4.41	7
G275 Calibrate specific conductivity meter	1.44	6	4	5	5	6	0	0	0	4.24	2
G276 Calibrate specific ion meter	1.64	2	4	2	2	3	0	0	0	4.52	2

WISH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0018 V 3a. Understand principles of wastewater management. PC: B										
G291 Evaluate efficiency of industrial waste treatment or disposal methods	2.82	16	24	15	19	17	21	17	5.97	2
G299 Monitor base effluent sewage to city treatment facilities	2.38	13	7	10	10	12	5	0	5.25	2
F239 Survey permanent water treatment processes and equipment	3.38	13	14	9	12	11	5	17	4.97	7
G292 Evaluate efficiency of sanitary sewage treatment operations	2.00	5	4	8	5	8	5	17	5.91	2
0020 V 4a. Understand how aquatic biomonitoring is used in water pollution investigations. PC: B										
G301 Monitor fish kills	3.04	10	10	10	12	8	16	0	6.11	7
0021 V 5. OEHL Aquatic Biomonitoring Services										
G309 Perform Installation Restoration Program (IRP) sampling	1.78	7	7	3	6	4	11	0	5.43	2
G288 Determine absolute elevation of water levels	.30	1	1	3	1	2	5	0	5.96	2
0023 V 6a. Understand basic principles of Groundwater Hydrology. PC: B										
G271 Calibrate pH meters	3.60	30	25	14	27	17	5	0	3.87	15
G260 Calibrate hach DR-EL test kits	3.10	24	25	11	21	13	5	0	4.58	7
G256 Calibrate dissolved oxygen meters	3.36	18	10	11	15	12	5	0	4.41	7
G275 Calibrate specific conductivity meter	1.44	6	4	5	5	6	0	0	4.24	2
G276 Calibrate specific ion meter	1.64	2	4	2	2	3	0	0	4.52	2

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0028 VI 1a. Understand BEE responsibilities and general principles relating to solid waste management. PC: B										
G290 Evaluate efficiency of garbage and refuse collection methods	1.20	5	4	3	5	4	5	0	5.01	2
0038 VIII 2a. Analyze air emissions for an air pollution inventory. PC: C										
G298 Inventory air pollution sources	2.58	5	9	15	7	16	21	0	6.01	2
0044 X 1a. Understand BEE responsibilities for the Environmental Protection Program. PC: B										
G286 Consult with Directorate of Environmental Compliance or Management	.90	8	8	11	8	13	16	17	5.70	2
0046 X 2a. Analyze the survey techniques used to evaluate water quality. PC: C										
G305 Perform bulk sample collection of hazardous waste	5.54	42	48	34	44	35	26	0	4.54	12
G297 Interpret and record results of chemical analyses of waste pollution samples	3.90	20	20	24	22	24	11	17	5.21	7
G285 Collect waste water samples for analyses	5.36	40	28	19	34	23	0	0	4.51	12

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
F234										
F237										
G320										
F225										
G317										
F241										
G299										
G306										
G311										
G323										
G287										
<hr/>										
0059	XI 1a.	Evaluate the responsibilities for managing the Drinking Water Surveillance Program. PC: C								
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F213	Interpret and record bacteriological analyses of water by membrane filter technique									
F228	Perform pH determinations									
F226	Perform chlorine determinations									
F218	Interpret and record results of chemical analyses of drinking water samples									
F220	Perform bacteriological analyses of drinking water by membrane filter technique									
F217	Interpret and record bacteriological analyses of water for total coliform									

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
F219	Interpret and record trihalomethane sampling results	4.10	16	16	13	15	16	5	17	4.73	7
F224	Perform bacteriological analyses of drinking water for total coliform	5.56	46	27	17	35	14	5	0	4.55	12
F229	Perform tests to determine fluoride levels in water	5.34	44	30	15	35	12	11	0	3.28	12
F215	Interpret and record bacteriological analyses of water for fecal coliform	3.20	35	21	10	26	12	5	0	4.46	15
F230	Perform trihalomethane sampling	4.12	19	17	10	16	11	5	0	3.96	7
F222	Perform bacteriological analyses of drinking water for fecal coliform	3.42	29	15	7	19	7	5	0	4.67	7
F214	Interpret and record bacteriological analyses of water by multiple fermentation technique (MPN)	3.36	9	1	3	5	3	5	0	5.16	7
F221	Perform bacteriological analyses of drinking water by MPN	3.18	6	4	2	4	1	5	0	5.29	7
F223	Perform bacteriological analyses of drinking water for fecal streptococcus	2.18	6	3	3	4	1	5	0	5.07	2
F216	Interpret and record bacteriological analyses of water for fecal streptococcus	2.18	9	4	2	5	1	5	0	4.75	2

B3AZY90770-009, INDUSTRIAL HYGIENE MEASUREMENTS,
DATED TENTATIVELY AUGUST 1991

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED
(PERCENT MEMBERS PERFORMING)

		TNG	1ST	2ND	CAR	907	907	907	907	TSK	
		EMP	ENL	ENL	EER	50	70	90	00	DIF	ATI
0009	III 1a. Explain the principles of chemical science and how it relates to Industrial Hygiene. CTS: 2a, b, c, d; Meas: W										
J415	Calculate gas laws	4.32	15	17	14	16	15	11	17	5.39	7
0020	VI 2a. Explain the operation of Issue Exception Code Program CTS: 5b, c; Meas: W										
E156	Establish or assign issue exception (IEX) codes 8 and 9 for chemicals	4.34	34	49	43	43	44	32	0	6.24	15
0023	VII 1a. Explain the procedures and responsibilities associated with assigning a Risk Assessment Code. CTS: 6a, b, c, e; Meas: W										
E158	Initiate and complete AF Forms 1118 (Notice of Hazard)	4.12	37	54	42	46	44	26	0	4.80	15
0025	VII 2a. Given the necessary information, compute a RAC in accordance with AFR 127-12. CTS: 6d; Meas: W										
K444	Assign risk assessment codes (RAC)	4.44	38	58	59	52	55	53	17	5.67	15

WIIII OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

TNG 1ST 2ND CAR 907 907 907 907 TSK
EMP ENL ENL EER 50 70 90 00 DIF ATT

0028 VIII 1a. Determine Permissible Exposure Limits for a given situation. CTS: 7a, b, c, d, e, f, g, h, i, l; Meas: W

J435	Calculate time weighted average (TWA)	6.96	72	86	70	84	70	63	17	4.54	18
K455	Interpret results of air sample analyses and make recommendations to OPR	5.62	54	75	61	69	62	53	17	5.67	18
K454	Interpret permissible exposure limit (PEL) values and notations	6.54	65	81	61	77	61	47	0	5.28	18
J425	Calculate permissible 8 hour exposure	6.56	68	76	61	74	60	58	0	4.66	18
K453	Establish follow-up actions for air sampling results	5.46	64	73	59	73	56	53	17	5.02	18
J422	Calculate parts per million (PPM) conversion	5.84	55	68	54	64	54	37	33	4.42	18
J434	Calculate threshold limit value (TLV) for chemical mixtures	6.38	51	67	54	62	51	58	17	5.18	18
J404	Calculate compliance factor	3.24	19	32	26	27	27	16	17	4.91	7

0030 VIII 2a. Interpret air sampling data and determine spill concentrations. CTS: 7j, k; Meas: W

K455	Interpret results of air sample analyses and make recommendations to OPR	5.62	54	75	61	69	62	53	17	5.67	18
J405	Calculate concentration by weight	3.74	20	25	27	25	25	32	17	5.04	7

0036 X 1a. Explain how sounds are generated and propagated through the medium of air. CTS: 9a; Meas: W

J437	Calculate TLV for noise	5.52	48	59	49	55	48	37	33	4.64	12
J411	Calculate equivalent continuous sound level	4.60	34	43	34	41	37	11	0	4.96	15
J404	Calculate compliance factor	3.24	19	32	26	27	27	16	17	4.91	7
J414	Calculate frequency or velocity calculation	4.40	26	22	27	29	26	21	0	5.48	7

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG	1ST	2ND	CAR	907	907	907	907	TSK	
		EMP	ENL	ENL	EER	50	70	90	00	DIF	ATI
0038	X 2a. Outline the uses and limitations of the various types of noise measuring equipment IAW manufacturers instructions. CTS: 9b; Meas: W										
K469	Perform noise surveys	6.54	85	88	61	87	58	37	17	4.72	18
G274	Calibrate sound level meters	5.86	69	71	50	71	51	26	17	3.68	18
G268	Calibrate octave band noise analyzers	3.74	37	38	21	36	25	5	0	4.63	15
G262	Calibrate impact noise analyzers	2.02	26	21	13	25	12	5	0	4.16	2
0046	XII 1a. Identify the factors that influence the interchange of heat between the human body and the surrounding environment, how they are measured and control measures. CTS: 11a-d; Meas: W										
K471	Perform temperature and humidity surveys	4.72	60	64	48	65	46	32	17	4.15	18
J436	Calculate time weighted average wet bulb globe test (WBGT)	5.16	41	49	40	47	40	42	17	4.61	12
0049	XIII 1a. Identify the types, limitations, tactics and sample collection methods. CTS: 12a(1-4); Meas: W										
G242	Calibrate air sampling pumps	7.08	85	86	64	88	63	42	0	4.73	18
K449	Construct and maintain industrial case files except tab "F"	6.46	74	83	60	81	58	42	17	5.54	18
G255	Calibrate constant flow samplers	4.54	31	38	24	34	27	21	0	4.24	15

FOR OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 50	907 70	907 90	907 00	TSK DIF	ATI
0055 XIII 4a. Identify the uses limitations, principles of operation, and calibration procedures for direct reading instruments. CTS: 12c; Meas: W										
G251 Calibrate carbon monoxide detectors	4.40	27	41	27	34	31	5	0	4.32	7
G253 Calibrate combustible gas indicators	4.50	19	27	23	24	25	11	0	4.37	7
G257 Calibrate ecolyzers	4.02	18	28	23	24	25	11	0	4.38	7
G258 Calibrate explosive meter	4.20	21	29	19	24	21	11	0	4.61	7
G264 Calibrate mercury vapor detectors	3.42	18	20	14	20	15	5	0	4.30	7
G269 Calibrate oxygen deficiency meters	3.70	12	19	14	15	15	5	0	4.09	7
0060 XIV 2a. Compare comfort ventilation survey results to their appropriate standard and make appropriate recommendations. CTS: 13b; Meas: W										
J438 Calculate ventilation measure	5.78	53	67	55	63	54	42	0	5.02	18
K465 Perform comfort ventilation surveys	4.38	39	41	30	41	27	21	0	4.30	15
0062 XIV 3a. Explain the design goals which must be considered when performing dilution ventilation calculations. CTS: 13c; Meas: W										
J393 Calculate air changes	6.32	64	80	67	75	67	53	17	4.43	18
J438 Calculate ventilation measure	5.78	53	67	55	63	54	42	0	5.02	18
J408 Calculate dilution ventilation	5.22	44	57	43	53	42	47	0	5.13	12
K466 Perform dilution ventilation surveys	4.78	61	56	40	60	37	32	17	4.98	18
J431 Calculate saturation concentration	2.26	6	3	7	5	8	0	0	5.67	2

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG	1ST	2ND	CAR	907	907	907	907	TSK
		EMP	ENL	ENL	EER	50	70	90	00	DIF
										ATI
0064	XIV 4a. Identify the major elements of local exhaust design standards. CTS: 13d Meas: W									
J438	Calculate ventilation measure	5.78	53	67	55	63	54	42	0	5.02 18
0066	XIV 5a. Summarize the major elements of an industrial ventilation system evaluation pertaining to initial, baseline, and routine surveys IAW AFOSH STD 161-2 and the ACGIH Industrial Ventilation Manual. CTS: 13e; Meas: W									
K468	Perform industrial ventilation surveys	6.84	79	83	59	84	55	42	17	5.62 18
J438	Calculate ventilation measure	5.78	53	67	55	63	54	42	0	5.02 18
0068	XIV 6a. Given ventilation measuring instruments, measure the air flow in selected ventilation systems and determine compliance with AFOSH STD 161-2 to the Industrial Ventilation Manual. CTS: 13f; Meas: P									
K468	Perform industrial ventilation surveys	6.84	79	83	59	84	55	42	17	5.62 18
K466	Perform dilution ventilation surveys	4.78	61	56	40	60	37	32	17	4.98 18
K465	Perform comfort ventilation surveys	4.38	39	41	30	41	27	21	0	4.30 15

0043

H367
E202
H349
H369

H341
H357
E193
H368

0046

H343
H353
J423

H355
H338

J426
H361
H346

B5



POI B3AZY90770-00, BIOENVIRONMENTAL ENGINEERING
READINESS, DATED MARCH 1991

B19



POI B3AZY90770-00, BIOENVIRONMENTAL ENGINEERING
READINESS, DATED MARCH 1991

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
0020	II 8a. Analyze the limitations and capabilities of NBC sampling equipment and how to maximize data and apply the results. CTS: 2d; MEAS: W											
M487	Collect samples to determine chemical or biological contamination	4.56	26	37	24	23	31	24	21	0	4.56	7
M486	Collect plant or animal samples from radiological contaminated areas	4.08	9	12	14	7	11	13	21	0	4.48	7
0022	II 9a. Analyze hazards encountered as a result of a nuclear detonation. CTS: 1b/2d/2e; MEAS: W											
M491	Determine types of radioactive contamination	4.26	18	30	28	15	25	27	37	33	5.51	7
0028	II 12a. Comprehend and apply the requirements for and the uses of a water vulnerability study. CTS: 2f; MEAS: W											
M490	Determine field water potability	5.46	38	41	34	34	40	34	37	17	5.21	12
M502	Evaluate methods used to protect water under field conditions	4.14	18	22	27	10	23	27	21	50	5.17	7
M504	Inspect construction of field water storage and treatment facilities	4.02	11	15	14	7	13	16	16	0	5.59	7

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG	1ST	2ND	CAR	907	907	907	907	907	TSK
	EMP	ENL	ENL	EER	30	50	70	90	00	DIF
										ATI
0030 II 13a. Analyze the methods for minimizing damage/ contamination to water supplies during war. CTS: 2f; MEAS: W										
M490 Determine field water potability	5.46	38	41	34	34	40	34	37	17	5.21
M502 Evaluate methods used to protect water under field conditions	4.14	18	22	27	10	23	27	21	50	5.17
M504 Inspect construction of field water storage and treatment facilities	4.02	11	15	14	7	13	16	16	0	5.59
0036 II 16a. Analyze field water supply sampling and screening requirements and determine methods of treatment and storage for alternate water systems. CTS: 2f; MEAS: W										
M504 Inspect construction of field water storage and treatment facilities	4.02	11	15	14	7	13	16	16	0	5.59
0049 III 5a. Comprehend the requirements for determining airborne concentrations of chemicals at a spill site and apply to a given situation. CTS: 4a; MEAS: W										
M487 Collect samples to determine chemical or biological contamination	4.56	26	37	24	23	31	24	21	0	4.56

POI OBJECTIVES MATCHED TO JOB INVENTORY TASKS
WITH OCCUPATIONAL SURVEY DATA PRESENTED (CONTINUED)
(PERCENT MEMBERS PERFORMING)

	TNG	1ST	2ND	CAR	907	907	907	907	TSK
	EMP	ENL	ENL	EER	30	50	70	90	DIF
									ATI
0053 III 7a. Apply the calculations necessary to determine PPE levels and determine when they are required at a PNWA. CTS: 4c; MEAS: W									
M487 Collect samples to determine chemical or biological contamination	4.56	26	37	24	23	31	24	21	0
									4.56
									7

TASKS NOT REFERENCED		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
A1	Compile health information for base personnel briefs	1.20	10	24	27	12	16	31	26	17	4.08	2
A2	Coordinate work requests with civil engineering personnel	1.36	21	36	56	19	31	55	68	50	3.76	2
A3	Design or develop information charts, status boards, graphs, or spot maps	1.14	20	34	52	21	28	53	63	83	4.50	2
A4	Determine requirements for space, personnel, equipment, or supplies	.68	18	31	56	14	27	59	79	83	5.39	2
A5	Determine work priorities	2.26	26	49	76	19	42	80	84	100	5.74	2
A6	Develop budget or financial requirements	.94	3	15	51	2	12	52	79	100	6.57	2
A7	Develop equipment utilization schedules	1.08	5	14	27	6	11	27	47	17	5.33	2
A8	Develop inspection schedules	1.44	13	20	50	12	21	47	68	50	5.26	2
A9	Develop mobility plans	.68	2	7	14	1	5	15	32	17	6.81	2
A10	Develop organizational charts	.08	3	8	31	0	7	32	58	83	3.97	2
A11	Develop self-inspection programs	1.48	6	9	37	3	9	39	74	50	6.77	2
A12	Develop unit emergency plans	1.04	3	9	23	1	8	25	32	33	6.88	2
A13	Develop work methods or procedures	2.02	15	32	57	11	28	56	63	100	6.45	2
A14	Establish organizational policies, office instructions (OI), or standing operating procedures (SOP)	1.66	21	44	64	12	36	65	89	67	6.85	2
A15	Establish performance standards	1.10	6	16	44	1	14	47	47	67	6.30	2
A16	Establish publication libraries	1.36	8	20	35	6	15	36	53	50	4.98	2
A17	Establish work schedules	1.62	13	26	66	12	25	70	58	67	5.36	2
A18	Participate in occupational health examination selection	.82	5	13	26	4	10	27	37	0	4.81	2
A19	Perform data trend analyses	1.50	14	20	28	8	19	28	42	50	5.74	2
A20	Plan agenda for staff meetings	.32	3	11	31	2	9	30	58	67	4.66	2
A21	Plan agenda for symposiums, conferences, or workshops	.30	3	4	14	2	4	14	16	33	5.84	2
A22	Plan layout of facilities	.34	5	3	17	1	6	16	26	50	5.50	2
A23	Plan new or improved methods for control of health hazards	1.70	15	25	33	13	22	33	26	67	6.90	2
A24	Plan safety programs	.94	3	9	21	3	7	20	37	50	5.06	2
A25	Plan security programs	.68	2	3	15	0	4	14	32	33	4.99	2
A26	Research or edit inputs for recurring reports	1.42	12	22	45	13	19	47	42	83	5.39	2
A27	Review publications to insure that health aspects are covered	1.04	8	21	35	5	16	36	53	67	5.71	2

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES

B25

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
INDUSTRIAL HYGIENE MEASUREMENTS, AND BIOENVIRONMENTAL ENGINEERING READINESS
(CONTINUED)

TASKS NOT REFERENCED	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
B54 Direct environmental protection programs	2.36	12	20	36	9	17	40	42	17	6.47	2
B55 Direct industrial hygiene surveillance of workplaces	2.50	22	34	51	20	31	54	42	17	7.00	2
B56 Direct industrial ventilation surveillance programs	2.36	18	35	45	17	27	48	42	0	6.28	2
B57 Direct ionizing radiation safety programs	2.48	6	17	28	3	12	35	26	0	7.66	2
B58 Direct medical evaluation of chemical incidences or disasters	2.24	7	13	30	5	12	31	37	0	7.24	2
B59 Direct medical evaluation of radiological incidences or disasters	2.04	5	10	21	4	9	24	16	0	7.23	2
B60 Direct medical portion of issue exception code program for hazardous materials	2.02	10	26	37	7	18	45	26	17	6.62	2
B61 Direct microwave oven surveillance programs	1.50	14	24	32	8	20	38	26	0	3.70	2
B62 Direct non-ionizing radiation safety programs	2.38	6	14	30	2	12	36	26	0	6.27	2
B63 Direct radiation dosimetry programs	2.36	15	23	28	9	18	36	32	0	4.80	2
B64 Direct radiological surveillance of drinking water	1.88	12	16	31	9	15	36	37	0	4.55	2
B65 Direct respiratory protection programs	2.70	16	20	33	12	19	36	32	17	5.97	2
B66 Implement cost reduction programs	.26	2	7	17	1	5	18	32	50	5.64	2
B67 Implement quality control standards	1.06	5	12	30	5	9	35	26	33	5.91	2
B68 Implement safety programs	1.22	4	14	32	5	10	34	58	17	4.72	2
B69 Implement security programs	.98	3	4	22	3	5	24	37	17	4.54	2
B70 Implement self-inspection programs	1.64	3	7	38	1	6	42	74	50	6.00	2
B71 Implement suggestion programs	.26	3	6	13	1	5	15	21	17	4.06	2
B72 Interpret policies, directives, or procedures for contractors or contracting officers	.48	3	6	13	3	4	15	26	17	6.54	2
B73 Interpret policies, directives, or procedures for subordinates											
B74 Maintain contingency plans	1.02	8	27	51	5	20	53	63	83	5.99	2
B75 Orient newly assigned personnel	1.14	4	9	31	3	7	34	53	50	5.51	2
B76 Schedule equipment repairs and calibrations	1.32	23	41	59	12	35	64	58	67	4.42	2
B77 Schedule use or maintenance of assigned vehicles	2.56	26	33	27	24	30	27	16	0	4.04	2
B78 Supervise Apprentice Bioenvironmental Engineering Specialists (AFSC 90730)	1.66	24	20	23	21	24	21	26	17	3.39	2
	1.50	8	28	31	6	21	30	26	0	5.48	2

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
INDUSTRIAL HYGIENE MEASUREMENTS, AND BIOENVIRONMENTAL ENGINEERING READINESS
(CONTINUED)

TASKS NOT REFERENCED		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
B79	Supervise Bioenvironmental Engineering Specialists (AFSC 90750)	1.24	3	32	60	4	21	66	42	33	5.61	2
B80	Supervise Bioenvironmental Engineering Superintendents (AFSC 90790)	.12	1	1	3	0	2	2	16	17	4.90	2
B81	Supervise Bioenvironmental Engineering Technicians (AFSC 90770)	.56	1	0	27	1	2	27	68	33	5.52	2
B82	Supervise civilian personnel	.72	1	2	14	0	2	12	47	33	5.51	2
B83	Supervise individual mobilization augmentees (IMA)	.48	2	3	5	1	3	5	11	0	4.99	2
B84	Supervise personnel with AFS other than 907X0	.46	1	1	9	0	2	6	32	50	4.93	2
B85	Write local policy or higher headquarters directives	.36	2	4	17	2	3	18	32	67	6.96	2
C86	Determine resource requirements	.78	5	17	50	4	13	52	74	100	5.76	2
C87	Evaluate administrative forms, files, or procedures	.78	17	26	52	10	25	53	74	100	5.16	2
C88	Evaluate budgeting or financial requirements	.84	2	10	43	1	9	45	74	67	6.24	2
C89	Evaluate civil engineering drawings for medical aspects of new or modified construction	1.34	3	9	34	1	8	38	47	33	6.69	2
C90	Evaluate collected data for contract compliance	.50	7	9	13	3	8	16	11	17	6.32	2
C91	Evaluate completed special projects	.92	7	17	37	4	15	38	42	50	6.36	2
C92	Evaluate compliance with performance standards	.80	12	20	35	9	16	39	47	50	5.80	2
C93	Evaluate contracts for site operation support	.86	1	1	7	0	2	7	11	0	6.10	2
C94	Evaluate emergency or disaster plans	1.84	2	9	32	3	6	35	47	50	6.23	2
C95	Evaluate hazard reports	2.04	7	22	34	5	16	34	42	33	5.65	2
C96	Evaluate individual mobilization augmentees (IMA)	.42	1	2	5	0	2	5	11	0	5.01	2
C97	Evaluate inspection reports or procedures	1.54	3	15	35	2	11	34	58	67	5.46	2
C98	Evaluate laboratory test results	2.80	39	51	43	33	46	45	42	17	5.77	14
C99	Evaluate military or environmental medicine reports	.56	3	7	11	1	6	10	11	33	5.26	2
C100	Evaluate procedures for storage, inventory, or inspection of property items	.74	10	16	27	7	15	27	26	33	4.91	2
C101	Evaluate requests for environmental differential pay	1.56	5	9	19	4	8	20	37	0	6.02	2
C102	Evaluate requests for issue of hazardous materials	3.12	28	48	55	22	42	56	37	17	5.45	7
C103	Evaluate safety programs	.90	6	20	24	7	12	25	42	33	4.80	2

(CONTINUED)

D131 Conduct specialized training on environmental hazards

TASKS NOT REFERENCED

B29

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
INDUSTRIAL HYGIENE MEASUREMENTS, AND BIOENVIRONMENTAL ENGINEERING READINESS
(CONTINUED)

TASKS NOT REFERENCED		TNG	1ST	2ND	CAR	907	907	907	907	907	907	TSK	
		EMP	ENL	ENL	EER	30	50	70	90	00	DIF	ATI	
E161	Initiate and complete AF Forms 2755 (Master Workplace Exposure Data Summary)	6.34	86	87	59	78	87	60	37	0	4.36	18	
E162	Initiate and complete AF Forms 2756A & B (Noise Dosimeter Survey)	6.02	85	84	48	79	82	50	26	0	4.23	18	
E163	Initiate and complete AF Forms 2757 (Illumination Survey Data Sheet)	5.32	82	79	53	77	81	53	26	0	3.64	18	
E164	Initiate and complete AF Forms 2758 (Industrial Hygiene Survey Data Sheet - General)	6.36	75	79	56	62	78	59	26	0	4.70	18	
E165	Initiate and complete AF Forms 2760 (Laser Hazard Evaluation)	3.86	23	30	18	21	27	18	11	0	6.20	7	
E166	Initiate and complete AF Forms 2762 (Listing of Industrial Hygiene Sample Results)	6.12	74	85	53	61	81	54	26	0	4.01	18	
E167	Initiate and complete AF Forms 2763 (Industrial Hygiene Ventilation Presurvey)	5.98	71	78	48	57	77	46	32	0	4.64	18	
E168	Initiate and complete AF Forms 2764 (Industrial Ventilation Survey Face Velocity Method)	6.18	76	83	54	64	82	52	32	17	4.91	18	
E169	Initiate and complete AF Forms 2765 (Industrial Ventilation Survey Pitot Traverse)	5.92	50	64	34	47	56	32	26	0	5.33	18	
E170	Initiate and complete AF Forms 495 (Swipe Container)	4.72	23	36	28	15	31	30	16	0	3.58	11	
E171	Initiate and complete computer generated AF Forms 2756A & B (Noise Dosimeter Survey)	5.46	67	64	34	64	64	31	21	0	4.18	18	
E172	Initiate and complete DD Forms 1149 (Requisition and Invoice/Shipping Document)	3.74	43	54	38	42	49	38	21	0	3.45	15	
E173	Initiate and complete DD Forms 2214 (Noise Survey)	5.74	82	83	57	72	84	56	26	17	3.88	18	
E174	Initiate and complete DD Forms 686 (Fluoride/Bacteriological Examination of Water)	4.56	31	21	12	33	23	14	11	0	2.98	5	
E175	Initiate and complete FDA Forms 2536 (Microwave Oven Field Test Record)	4.48	36	32	23	23	36	23	16	0	3.43	15	
E176	Initiate Standard Forms 513 (Medical Record - Consultation Sheet)	1.74	6	9	6	4	6	10	5	0	4.17	2	

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(CONTINUED)

TASKS NOT REFERENCED	TNG	1ST	2ND	CAR	907	907	907	907	907	907	907	TSK
	EMP	ENL	ENL	EER	30	50	70	90	00	DIF	ATI	
E177 Inventory tools, equipment, or supplies	2.60	40	49	48	26	47	52	47	17	3.16	14	
E178 Maintain administrative files	3.46	38	36	52	28	41	54	47	83	4.62	15	
E179 Maintain environmental protection agency (EPA) reference files	2.44	16	15	21	11	17	21	26	33	4.35	2	
E180 Maintain Occupational Safety and Health Act (OSHA) reference files	2.46	14	17	28	9	18	27	42	50	4.22	2	
E181 Maintain reference files other than OSHA or EPA reference files	2.46	12	19	28	9	17	27	42	33	4.07	2	
E182 Maintain supply price lists	1.12	10	21	26	9	16	29	16	17	3.37	2	
E183 Maintain survey schedules	2.22	16	22	52	8	26	53	47	33	4.30	2	
E184 Make entries on AF Forms 1800 (Operator's Inspection Guide and Trouble Report (General Purpose Vehicles))	2.78	55	57	43	45	58	41	32	17	2.09	6	
E185 Make entries on AF Forms 190 (Occupational Illness/Injury Report)	3.68	10	26	38	5	22	40	32	0	4.43	7	
E186 Make entries on AF Forms 2753 (Radiological Sampling Data)	4.70	11	22	17	3	19	18	11	0	4.10	11	
E187 Make entries on AF Forms 2754 (Chronological Record of Workplace Surveillance)	6.18	73	87	67	59	84	68	37	17	3.10	18	
E188 Make entries on AF Forms 2759 (Radio Frequency Emitter Survey)	5.18	30	55	39	19	44	41	26	0	5.27	12	
E189 Make entries on AF Forms 2761 (Hazardous Materials Data)	6.52	79	84	58	70	84	56	32	0	4.92	18	
E190 Make entries on AF Forms 601 (Equipment Action Request)	3.30	10	33	42	5	24	44	47	33	5.12	7	
E191 Make entries on AF Forms 708 (Swimming Pool Operational Log)	4.74	47	23	19	51	34	19	11	0	2.79	10	
E192 Make entries on DD Forms 1348-6 (DOD Single Line Item Requisition System Document (Manual-Long Form))	2.32	17	25	30	9	23	32	32	0	3.45	2	
E194 Operationally maintain military motor vehicles	2.52	48	48	25	41	47	27	16	0	3.17	14	
E195 Research supply catalogs	1.90	25	46	48	19	36	53	58	17	3.82	2	
E196 Research technical publications	3.52	23	40	48	21	31	49	68	50	4.92	7	
E197 Review AF Forms 2005 (Issue/Turn in Request)	.86	3	12	16	2	8	17	11	17	3.03	2	

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
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(CONTINUED)

TASKS NOT REFERENCED		TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
E198	Review AFLC Forms 1169 (Radioactive Material Permits/ License)	1.52	3	7	11	2	5	15	5	0	6.22	2
E199	Review and complete AF Forms 2750 (Industrial Hygiene Sampling Data)	5.22	63	77	57	52	73	56	42	0	4.38	18
E200	Review case file history of occupational exposure to ionizing radiation	2.52	23	36	25	19	27	31	21	0	5.38	2
E201	Review occupational health computer products, such as occupational codes	1.40	3	7	10	3	6	8	16	0	4.67	2
E203	Update potable sampling water logs	4.50	41	33	20	45	34	23	11	0	3.43	15
F204	Collect aircraft water samples	3.50	14	10	3	10	11	5	5	0	3.03	7
F205	Collect ice samples for bacteriological analyses	3.62	16	10	5	15	12	6	5	0	2.58	3
F206	Collect potable water samples for analyses	5.98	62	41	24	65	50	22	11	0	2.95	13
F207	Collect water truck samples for VIP aircraft	2.80	13	7	3	11	10	3	5	0	2.97	1
F208	Collect well water samples for total chemical analyses	5.24	40	29	14	37	34	14	11	0	3.72	12
F209	Develop trend analysis of drinking water samples	3.52	18	14	17	19	15	17	37	17	5.16	7
F210	Develop water distribution maps	3.44	14	10	19	13	13	18	32	17	4.89	7
F211	Evaluate disinfection of water systems	3.90	19	17	18	22	18	19	11	0	5.04	7
F212	Examine disinfection of new and repaired water distribution lines	4.38	21	19	17	24	18	20	11	0	5.32	7
F227	Perform iodine residuals determinations	1.84	5	2	3	7	3	1	5	0	3.30	2
F231	Prepare buffer solutions	4.78	25	14	7	22	19	8	5	0	4.40	11
F232	Prepare dilution water	5.02	26	16	7	27	19	8	5	0	4.27	11
F233	Prepare public notifications of hazardous water conditions	2.90	10	12	14	11	10	16	16	17	6.02	7
F235	Record contracted water laboratory results	3.82	32	18	12	39	24	10	11	0	3.24	15
F236	Review contracted water laboratory results	3.18	25	17	21	33	20	20	21	17	3.56	7
F238	Sterilize equipment and water bottles	4.92	51	32	14	52	38	15	5	0	3.05	18
F240	Survey water distribution and storage facilities	3.78	23	17	15	29	18	16	5	17	5.15	7
G243	Calibrate AN/PDR 27 meters	4.66	52	57	34	44	54	35	26	0	3.93	17
G244	Calibrate AN/PDR 56 meters	4.48	39	42	22	38	39	23	21	0	4.20	15

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
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INDUSTRIAL HYGIENE MEASUREMENTS, AND BIOENVIRONMENTAL ENGINEERING READINESS
(CONTINUED)

TASKS NOT REFERENCED	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
G245 Calibrate analytical balances	1.72	8	3	6	7	5	6	5	0	4.91	2
G246 Calibrate anemometers	2.30	7	9	3	7	8	2	5	0	4.61	2
G247 Calibrate atomic absorption spectrophotometers	.58	2	3	2	4	2	2	5	0	6.12	2
G248 Calibrate bacteriological water kits	2.16	12	9	7	16	9	5	5	0	4.24	2
G249 Calibrate bubble meters	4.00	29	31	19	27	30	19	11	0	4.09	7
G250 Calibrate bubblers/impingers	4.50	26	18	20	27	23	19	11	0	4.34	7
G252 Calibrate chemical oxygen demand meters	2.90	13	8	5	9	10	5	5	0	4.50	7
G254 Calibrate conductivity meters	1.72	7	6	7	7	6	10	5	0	4.48	2
G259 Calibrate graphic level recorders	1.36	3	3	4	4	2	4	11	0	4.67	2
G261 Calibrate hygrothermographs	2.56	16	24	12	13	19	13	11	0	4.03	2
G263 Calibrate incubators	2.42	10	5	7	10	8	6	5	0	3.84	2
G265 Calibrate midjet impingers	3.34	16	14	17	14	18	16	5	0	4.31	7
G266 Calibrate miran analyzers	2.10	12	4	10	9	10	10	11	0	6.61	2
G267 Calibrate noise dosimeters	6.22	76	76	45	72	76	44	26	0	4.45	18
G270 Calibrate PAC 1S	4.08	32	45	25	22	40	25	11	0	3.61	15
G272 Calibrate pocket dosimeters/chambers	2.36	8	7	7	10	8	6	5	0	3.36	2
G273 Calibrate pycnometers	1.84	9	9	8	8	10	6	0	17	3.25	2
G277 Calibrate thermometers	1.30	5	5	1	3	5	1	0	0	3.35	2
G278 Calibrate vacuum pressure pumps	1.54	5	4	4	4	5	3	0	0	4.05	2
G279 Calibrate velometers	3.26	13	16	10	8	16	10	0	0	4.42	7
G280 Calibrate water bath incubators	1.62	5	4	3	9	3	4	0	0	3.86	2
G281 Collect air samples for environmental analysis	5.50	53	57	37	54	55	33	11	0	5.17	18
G282 Collect breathing zone asbestos samples	6.78	51	59	40	44	55	42	26	0	5.19	18
G283 Collect clearance asbestos samples	6.52	36	45	30	35	40	32	16	0	5.42	12
G284 Collect environmental asbestos samples	5.98	39	49	31	35	43	32	21	0	5.24	12
G289 Determine asbestos grade	2.34	8	12	11	7	10	12	16	0	6.12	2
G293 Evaluate work areas for sick building syndrome	3.00	13	10	16	8	13	18	11	0	6.89	7
G294 Identify air emission sources	2.88	9	9	16	8	10	18	16	0	6.09	7
G295 Interpret and record polychlorinated biphenyls (PCB) transformer sampling	4.20	21	28	23	13	27	22	16	17	4.84	7

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
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(CONTINUED)

TASKS NOT REFERENCED	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
G296 Interpret and record results of asbestos analyses	4.74	38	49	40	31	46	40	32	17	4.97	12
G300 Monitor chemical spills, other than PCB	4.96	37	52	48	27	48	49	42	0	5.98	12
G302 Monitor PCB spill cleanups	4.12	16	14	18	11	18	18	21	0	5.97	7
G303 Monitor visible emissions	2.14	4	7	7	4	6	6	5	0	5.62	2
G304 Perform asbestos analyses	1.82	15	16	12	6	18	11	11	0	6.47	2
G307 Perform chemical tests, such as dissolved oxygen, biochemical oxygen demand, or hydrogen sulfide on sewage	3.30	14	5	7	13	11	3	11	0	5.36	7
G308 Perform conductivity tests	1.66	9	6	5	4	8	6	5	0	4.42	2
G310 Perform mercury spill cleanups	3.44	26	26	20	16	28	20	11	0	5.10	7
G312 Perform PCB soil sampling	3.86	18	17	11	10	20	11	5	0	4.49	7
G313 Perform PCB transformer sampling	4.00	22	30	14	14	27	14	11	0	4.32	7
G314 Perform physical tests on bodies of water	2.74	8	7	6	6	8	6	5	0	4.35	2
G315 Perform physical tests on sewage, such as color, odor, temperature, or settleable solids	2.10	8	5	3	7	6	3	5	0	4.56	2
G316 Perform pollution abatement studies	1.82	3	4	6	1	4	6	5	0	6.10	2
G318 Review waste disposal procedures in industrial case files	3.96	32	35	30	16	36	32	26	17	4.87	15
G319 Ship asbestos samples for analyses	5.10	46	54	37	42	52	34	32	0	2.99	10
G321 Survey air emissions	2.00	9	6	3	8	7	4	5	0	5.63	2
G322 Survey air pollution sources	2.44	9	5	7	10	7	8	5	0	5.75	2
G324 Survey facilities for asbestos	5.06	35	45	34	23	41	38	26	17	5.31	12
G325 Survey sub-surface sewage disposal facilities, such as septic or absorption fields	1.24	5	1	3	4	3	3	5	0	5.46	2
G326 Transport asbestos samples for analyses	3.00	22	25	18	17	24	18	11	17	2.89	3
G327 Transport water pollution samples for chemical or radiological analyses	3.12	15	16	10	16	14	10	5	0	2.83	3
H328 Analyze isotope swipes	.84	5	1	4	3	4	5	5	0	5.83	2
H334 Coordinate with the USAF Occupational and Environmental Health Lab on special radiological studies materials	2.52	5	7	13	6	5	14	16	0	5.42	2
H348 Inspect missile components for radioactive materials	1.52	2	1	2	1	2	2	0	0	6.20	2
H354 Investigate abnormal exposures or overexposures to ionizing radiation	3.26	11	23	18	8	16	23	16	0	7.13	7

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TASKS NOT REFERENCED

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(CONTINUED)

TASKS NOT REFERENCED	TNG													TSK				ATI
	EMP	1ST ENL	2ND ENL	CAR	907 EER	907 EER	907 EER	907 EER	907 EER	907 EER	907 EER	907 EER	907 EER	00	00	00	DIF	
I390 Prescribe protective equipment for personnel handling missiles	1.10	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	5.42	2
I391 Provide consultation services for all DOD hypergolic movements in CONUS	.30	0	1	1	1	0	1	0	1	0	0	5	0	0	0	0	7.16	2
I392 Review missile operations support requirements	.36	1	1	0	0	0	1	0	1	0	0	5	0	0	0	0	5.97	2
J394 Calculate airborne contamination	6.22	49	64	58	37	60	60	60	42	17	5.07	12						
J395 Calculate area of a circle	5.48	58	75	59	46	70	59	42	0	3.36	18							
J396 Calculate area of a parallelogram	2.70	17	13	13	13	16	12	16	17	4.31	2							
J397 Calculate area of a sphere	3.24	15	12	14	15	14	12	16	0	4.41	7							
J398 Calculate area of a trapezoid	2.72	13	12	8	14	12	6	11	0	4.55	2							
J399 Calculate area of a triangle	3.34	19	17	16	16	19	14	11	0	3.94	7							
J400 Calculate area of an oval duct	4.36	27	36	24	26	30	25	16	0	4.45	7							
J401 Calculate average metabolic rate	2.06	5	11	9	7	8	8	5	0	4.94	2							
J402 Calculate circumference of a circle	5.20	34	42	33	28	40	32	26	17	3.75	12							
J403 Calculate common logarithms	4.68	36	39	32	26	40	34	16	17	4.81	12							
J406 Calculate converting gain in dB to absolute gain	3.38	13	15	15	9	16	16	5	0	5.09	7							
J409 Calculate dimensional analysis	1.80	10	4	9	7	8	9	5	0	5.46	2							
J410 Calculate electromagnetic wave energy	1.96	4	7	11	3	6	12	5	0	6.18	2							
J412 Calculate exponential powers	3.24	21	28	24	17	25	25	11	17	4.70	7							
J416 Calculate half life-specific activity	3.18	9	10	12	8	10	12	11	33	5.69	7							
J417 Calculate inverse square law	4.42	18	24	27	13	23	29	16	33	4.66	7							
J418 Calculate kinetic energy	1.76	5	4	3	4	5	3	5	0	5.54	2							
J419 Calculate mass to energy and energy to mass conversion	2.20	7	1	3	6	5	3	5	17	5.69	2							
J420 Calculate measurement of central tendency	1.44	2	1	2	2	1	3	5	0	6.59	2							
J424 Calculate permissible lifetime exposure	4.68	15	25	18	14	17	21	21	33	4.88	11							
J427 Calculate rates and ratios	3.50	21	21	23	21	20	25	16	33	4.95	7							
J428 Calculate reflectance factors	2.64	5	6	7	4	6	8	0	0	4.63	2							
J430 Calculate roots	3.10	15	15	14	11	15	18	0	17	4.62	7							
J433 Calculate specific ionizations	1.48	4	4	4	2	5	4	5	0	5.93	2							
J439 Calculate volume of a cone or pyramid	2.20	6	5	7	6	7	5	11	0	5.08	2							

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TASKS NOT REFERENCED	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
J440 Calculate volume of a cylinder	2.92	13	17	12	11	15	12	11	0	4.61	7
J441 Calculate volume of a rectangle	3.56	24	30	24	18	28	26	26	17	4.29	7
J442 Calculate volume of a sphere	2.86	11	10	9	12	10	9	16	0	4.65	2
K443 Assemble equipment for special environmental industrial surveys	3.96	48	62	50	41	58	50	21	17	4.13	15
K445 Collect area air samples from industrial environment	6.52	75	81	58	67	79	59	21	0	5.12	18
K446 Collect breathing zone or personal air samples, other than asbestos samples	7.18	79	86	58	68	83	59	37	0	5.11	18
K447 Collect chemical samples from industrial environment	6.08	49	64	40	39	58	38	32	0	4.60	12
K448 Compile data on equipment, aircraft, or other operations which produce noise	5.00	62	77	45	56	69	45	32	17	5.07	18
K450 Determine and recommend control methods to protect workers from hazards	6.04	72	84	64	62	79	63	53	33	6.02	18
K451 Document industrial hygiene shop visits	6.44	82	88	68	74	88	66	47	17	4.20	18
K452 Document shop surveys	6.94	79	88	64	69	86	61	47	17	4.64	18
K456 Interpret results of bulk sample analyses and make recommendations to OPR	5.30	47	65	53	30	61	52	53	0	5.34	12
K457 Interpret short term exposure limit (STEL) values and notations	6.14	46	62	48	27	59	47	47	0	5.47	12
K458 Investigate environmental differential pay (EDP) occupations	2.44	11	18	21	6	16	21	37	0	6.03	2
K459 Investigate possible biological health hazards	3.62	44	43	31	39	45	29	16	17	6.10	15
K460 Investigate possible chemical health hazards	5.26	66	79	65	53	76	64	58	17	5.99	18
K461 Investigate possible physical health hazards	4.90	55	65	53	47	63	53	37	17	5.71	18
K462 Monitor issue exception coded materials	5.20	38	57	49	31	50	50	37	17	5.39	12
K463 Monitor risk assessment codes (RAC)	4.60	32	46	47	26	40	50	42	17	5.13	15
K464 Perform administrative area surveys	3.96	55	68	45	40	64	44	37	17	3.70	17
K467 Perform illumination surveys	3.92	81	75	54	77	78	53	37	17	3.32	17
K470 Perform pregnant worker evaluations	5.10	33	54	54	20	48	55	42	17	5.48	12
K472 Perform ventilation surveys to identify designated smoking areas	2.00	12	20	19	8	18	18	11	17	4.34	2

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TASKS NOT REFERENCED	TNG EMP	1ST ENL	2ND ENL	CAR EER	907 30	907 50	907 70	907 90	907 00	TSK DIF	ATI
K473 Review AF Forms 190 (Occupational Illness/Injury Report)	3.60	13	35	45	10	26	47	37	33	4.90	7
K474 Review or update issue exception code listings	4.08	25	46	38	24	34	41	26	17	5.32	7
K475 Survey industrial waste treatment facilities	3.16	10	20	10	10	14	11	5	0	5.64	7
L476 Advise shop supervisors in ordering respiratory protection devices	4.82	52	53	43	37	58	40	26	17	5.14	18
L477 Fit respiratory protective devices	6.16	46	34	32	43	43	29	16	0	4.89	12
L478 Monitor respiratory protection programs	4.72	29	33	34	23	34	36	21	17	5.22	11
L479 Order and issue respiratory protection devices	3.46	11	16	13	10	13	16	0	0	4.65	7
L480 Perform selection of respiratory protective devices for personnel	5.74	34	41	33	28	40	34	21	0	4.96	12
M481 Assemble or disassemble decon stations	2.74	30	30	26	24	30	29	16	33	5.22	14
M482 Assemble or disassemble tents	1.92	37	43	32	31	41	33	21	33	4.39	14
M483 Brief field officials on possible health hazards	3.66	19	44	39	16	31	43	42	33	5.56	7
M484 Brief field officials on types of decontamination required	3.46	15	29	34	13	22	38	42	33	5.62	7
M485 Calculate stay time or total dose in radiation areas	4.62	21	36	29	18	28	32	32	0	5.91	7
M488 Collect urine or breath samples from personnel leaving radiologically contaminated areas	3.46	8	15	15	4	13	16	16	0	3.93	7
M489 Determine amount of neutralizers needed in spill emergencies	4.30	12	25	26	8	18	30	42	17	5.87	7
M492 Develop recommendations to determine food facility placement	1.48	2	4	5	1	4	4	11	0	5.22	2
M493 Develop recommendations to determine medical site selection	2.42	5	10	8	5	7	6	21	17	5.62	2
M494 Develop recommendations to determine sanitary device placement	2.12	3	7	8	2	5	7	21	17	5.12	2
M495 Direct biological sample collections from radiologically contaminated areas and personnel	2.40	7	13	14	7	9	17	21	0	5.85	2
M497 Direct methods to protect food supplies	1.16	3	4	5	1	5	3	5	17	5.33	2
M500 Don or doff protective chemical ensemble	5.34	53	67	55	44	62	58	47	17	4.07	18

TASKS NOT REFERENCED TO POIs FOR 90770 COURSES
INDUSTRIAL RADIOLOGICAL HAZARDS, ENVIRONMENTAL PROTECTION,
INDUSTRIAL HYGIENE MEASUREMENTS, AND BIOENVIRONMENTAL ENGINEERING READINESS
(CONTINUED)

TASKS NOT REFERENCED	TNG		1ST		2ND		CAR		907		907		907		907		TSK	ATT
	EMP		ENL		ENL		EER		30	50	70	90	00	DIF				
M501																		
M503	1.90	5	5	7	4	6	6	11	17	4.84	2							
M505	5.94	38	52	40	33	44	47	26	0	5.45	12							
M506	2.76	3	7	7	5	5	6	11	17	5.20	2							
M508	.94	5	9	7	2	7	7	11	0	4.91	2							
M509	4.18	17	27	21	14	20	26	21	0	5.20	7							
M510	3.44	33	41	27	24	37	29	32	0	3.41	15							
M511	5.34	52	57	41	43	55	42	37	17	3.51	18							
M512	5.34	42	41	26	42	40	27	32	17	3.43	12							
M513	5.08	24	38	24	17	30	28	26	17	3.43	11							
M514	5.20	26	38	28	16	32	31	37	17	3.53	11							
M515	5.12	43	49	29	31	46	32	26	17	3.47	12							
M516	3.04	37	37	22	26	38	23	21	0	3.29	15							
M517	1.02	10	10	4	2	11	5	5	17	4.07	2							
M518	2.54	46	59	42	42	53	42	42	17	2.96	4							
M519	4.08	30	30	20	27	31	19	11	17	5.16	15							
M520	.76	5	9	7	2	7	8	0	0	4.91	2							
M521	1.10	1	1	3	1	1	3	0	0	5.08	2							
M522	3.82	19	18	17	11	21	18	11	17	5.14	7							
M523	1.20	2	2	1	0	2	1	0	0	4.24	2							
M524	1.74	1	1	3	0	2	3	0	0	4.08	2							
M525	3.14	9	12	7	9	10	8	0	0	4.13	7							
	3.48	17	33	22	10	25	24	16	17	3.44	7							